

FEB 24 1925

THE ARCHITECTURAL FORUM



FEBRUARY
1925



As Silent and Sure as the Close of Day

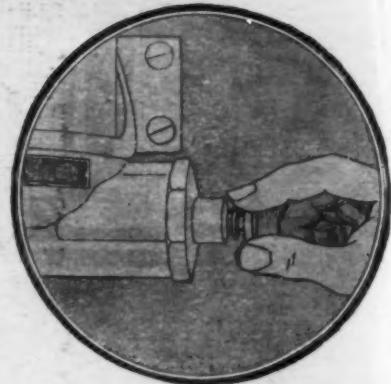
The inevitable close of day is no more silent nor more sure than the positive operation of all doors equipped with the—

R-W Door Closer and Check

Six sizes, suitable for every door from the light screen frame to heavy outside doors which are required to close against a strong draft.

The R-W Door Closer and Check is made and assembled with watch-like precision. Many notable features are included in its construction, such as instant adaptability to right or left hand doors; simple adjustment of closing pressure controlled by a single milled screw; arrangement which prevents spring from being wound beyond the safety limit; high lubricating property of special liquid, and leakproof construction.

All these advantages plus the R-W imprint, which is the "sterling mark" of standard hardware, combine in the production of the perfect door check and closer. Write to Dept. F for catalog containing complete line and detailed descriptions.



Showing simple adjustment of closing pressure accomplished by the fingers without tools.

Also exclusive manufacturers of Slidelite Garage Door Hardware, R-W IDEAL Elevator Door Hardware, AiR-Way Multifold Window Hardware, and other nationally-advertised items of builders' Hardware.

New York
Boston
Philadelphia
Cleveland
Cincinnati
Indianapolis
St. Louis

Richards-Wilcox Mfg. Co.
A Hanger for any Door that Slides
AURORA, ILLINOIS, U.S.A.

RICHARDS-WILCOX CANADIAN CO., LTD.
Winnipeg LONDON, ONT. Montreal

Chicago
Minneapolis
Omaha
Kansas City
Los Angeles
San Francisco
Seattle

(818)

Architectural
Library



COLONNADE OF THE PIAZZA DI SAN PIETRO, ROME
FROM A SKETCH IN CHARCOAL BY FRANCIS KEALLY

The Architectural Forum

The ARCHITECTURAL FORUM

VOLUME XLII

FEBRUARY 1925

NUMBER 2

The Field Museum of Natural History, Chicago

GRAHAM, ANDERSON, PROBST & WHITE, ARCHITECTS

By C. F. MURPHY

THE history of building proves that great enterprises usually meet with a succession of obstacles requiring time for solution, and that completion comes only after the lapse of a long period. St. Peter's required some 50 years for the erection of the mass of the building, and 150 years more for the final completion. It is, therefore, perhaps not unusual that the Field Museum of Natural History has required time for construction. Organized in the old Fine Arts Building in Jackson Park in 1894, the plans for the new building were completed in sketch form in 1902, reaching the stage of final working plans in 1906, and the building contract was let in 1911. The building was actually begun in 1915, and was opened to the public in 1921, 27 years from the time of the inception of the enterprise.

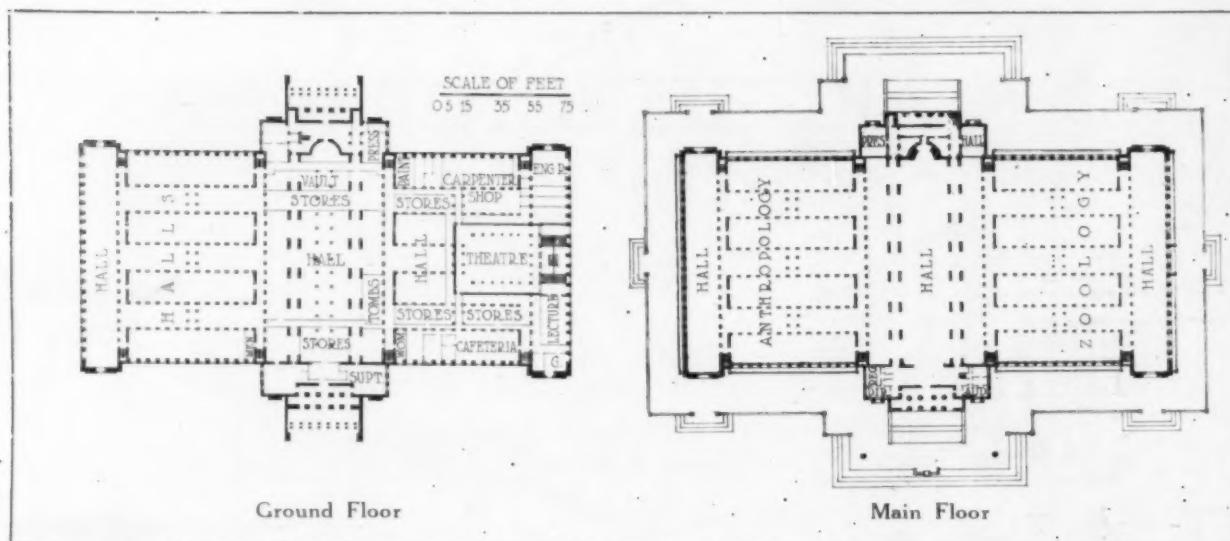
The conception of the idea of a natural history museum for Chicago grew out of the interest aroused by the collection of natural history exhibits brought together at the World's Columbian Exposition. After the close of that historic exposition, in 1894, Marshall Field, with wisdom and insight, generously provided the means for the founding of a permanent institution. The museum, covering a unique, attractive and instructive field, received immediate popular appreciation not only in Chicago but in a large part of the country tributary thereto, and under the patronage of Mr. Field great strides were made in adding largely to the number and to improving the character of the exhibits. As a result of this popular appreciation, the question of the permanent housing of the exhibits received the earnest consideration of Mr. Field, who with true and generous community spirit determined to house the exhibits in a permanent edifice. At a dinner given by him in 1901 to Henry Dibblee and E. R. Graham, they discussed the possibility and cost of removing the staff exterior of the Fine Arts Building in Jackson Park and reproducing it in marble. These estimates were accordingly made, but on account of the increasing number of exhibits, and since room was needed for further growth, it was decided that the building was too small and that the need of a new

and larger building was even at that time apparent.

The matter of a new building thus initiated was taken up actively at frequent meetings between Mr. Field, Mr. Dibblee and Mr. Graham, and a number of sketches were developed. In the beginning no lines were laid down to govern the design except the general idea for a building of a capacity considerably greater than that of the old structure. Many studies were made comprising a central structure with flanking buildings. As a result of these the conviction finally developed that the existing old building, built for the purpose of the World's Fair, was an undoubted and widely recognized success. New studies were developed along these lines, using the same motifs of architecture, which seemed to be on the whole the most satisfactory. After a thorough discussion it was concluded that nothing finer could be had, and that the practical development of the accepted design on a larger scale should be the guide for subsequent procedure.

From then on ideas in accordance therewith were carefully developed, and a plan was agreed upon providing for a longitudinal nave down the center with a similar nave at right angles, the junction point of these two main naves being covered by a large dome. The working plans and specifications were within a few weeks of completion when in January, 1906 Mr. Field died. Shortly after his death, the Board of Trustees of the Field Museum, after full deliberation with the Director, Frederick Skiff, decided that the longitudinal nave and dome could be eliminated without in any way impairing the suitability of the building for exhibition purposes. The architects were therefore asked to revise the plans with this in view, which consideration resulted in the omission of the longitudinal nave and dome and the substitution of a plan which featured a single nave running through the building from end to end and connecting with exhibition halls arranged on either side.

In January, 1910 Stanley Field was elected President of the Museum, and since that date the work has been continued under his guidance. Before construction was actually begun there became evident a



growing sentiment in favor of a site more nearly in the center of the city, and with this idea in mind, in January, 1912, after considering the various possibilities, a site was selected immediately east of the Illinois Central station and south of 12th Street, when extended. This site, after the making of more complete studies, met with the unanimous approval of the Trustees of the Museum, and accordingly a new contract was made with the South Park Commissioners for use of this location. At that time the waters of Lake Michigan covered the greater portion of the site in question, and it was necessary

for the South Park Commissioners to make arrangements to fill in this area and to obtain the consent of the War Department to the changing of the lake's shore line.

The Field Museum of Natural History is a building about 350 feet wide by 700 feet long, consisting in its general arrangement of a great central hall or nave flanked by transverse exhibition halls on both sides, these exhibition halls being again united by transverse exhibition halls at each end of the structure. The building contains three stories, and basement, the main central hall rising the entire height



Stairway in Stanley Field Hall



Stanley Field Hall

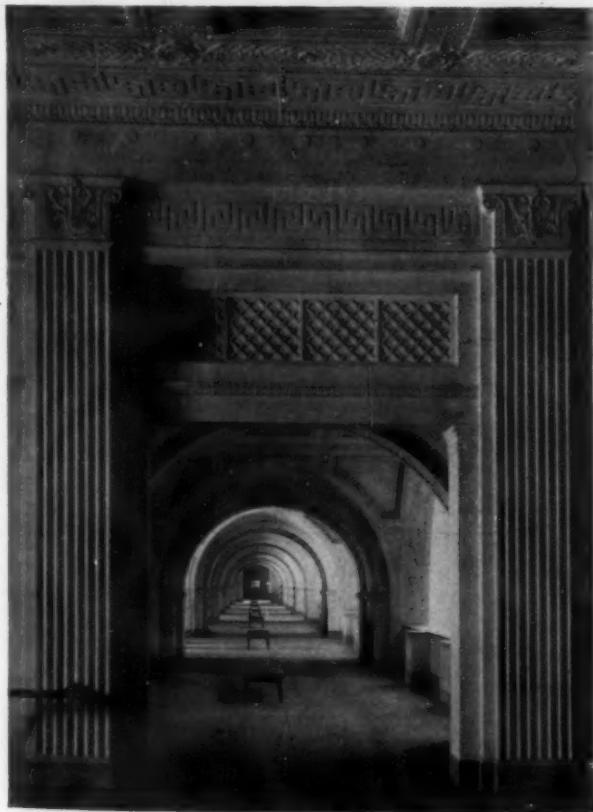
of the building, the rest of the structure being divided into stories as described. The building has been planned and designed to provide these accommodations: First, perfect exhibition rooms for the display of scientific collections. Second, adequate housing and equipment for the scientific working departments which belong with such a museum. Third, a building which would measure up to the high standards of Greek architecture and enhance the monumental appearance of the city. The exterior, about 80 feet high, is treated with a monumental Ionic order, the principal front being divided into a large pedimented central pavilion and two long wings terminated by smaller pavilions at each end. This order rests upon a stylobate or basement story, and is crowned by an attic pierced with windows to light the working floor.

The main motifs of the building are studied directly from the Erechtheion and similarly characterized by the very free decorative use of caryatid motifs and by the picturesque use of cornices brought together in the building at different levels. This fine example of the Ionic order has been followed very closely in the Field Museum, every detail of which has been carefully studied in comparison with the corresponding work in the Erechtheion, which was frankly accepted as the prototype to govern the design. One of the principal features of the building is the terrace, about 50 feet wide, extending all the way around the building and rising about 6 feet above the surrounding area. This terrace is defined by a retaining wall, steps and balustrades of the

same marble as the building proper. The main entrance is provided with an ample flight of steps leading up to the central doorway and is emphasized by decorative flagstaffs placed upon the terrace at the right and left.

The material for the exterior is Georgia white marble, and the interior of the building is finished in such a manner as to form dignified backgrounds for the exhibits and in a style to harmonize with the Greek tradition followed for the outside of the building. In the basement is located the James Simpson Theater, seating 953 people, one of the finest of its kind. It is 100 feet long and 95 feet wide, with an average ceiling height of 23 feet. The architectural treatment is in keeping with the rest of the structure and is pure Greek in character. The central seating space is surrounded on three sides by a Doric colonnade forming lobbies 14 feet wide.

The first floor of the Museum is given over almost entirely to exhibition purposes, with the exception of the executive offices, and contains the principal gallery of the building, Stanley Field Hall, which is some 70 feet wide and extends from the north to the south entrance, a distance of some 280 feet. The height of the nave is 76 feet, covered by a skylight. The first floor extends over the whole lot area and is not subdivided save by the structural details of the building. Stanley Field Hall at the second floor level is flanked by a passageway running the entire length of the structure, opening out from which are exhibition spaces parallel to the nave the full depth of the building, and leading from these are exhibi-



Detail of Entrance to End Gallery



Detail of Entrance to Stanley Field Hall

tion halls some 40 feet wide by 175 feet long, the exhibition spaces being divided by courts, thus giving ample light to the exhibits. Bridge passageways between these courts afford convenient means of circulation. At the east and west ends of the building are large exhibition halls 50 feet in width extending the full depth of the building. The upper floors are given over entirely to administrative uses, including offices for the curators, taxidermists, etc. The various story heights are: basement, 16 feet; first floor, 24 feet; second floor, 20 feet, 6 inches; the third floor, 13 feet. The general system of lighting is from overhead fixtures, the main nave being lighted by eight ornamental chandeliers. Illumination is also provided in the exhibition cases.

The main building is built upon 60-foot Georgia pine piles, which are cut off 2 feet, 6 inches below the lake level. Upon these piles is a concrete foundation, and concrete or brick columns extend to grade. The space from where the piles are cut off to the bottom of the basement floor was filled in with lake sand, and upon this the basement floor was laid. Brick walls in all instances are carried up to the roof. Floors are of steel girders with tile above.

The mechanical equipment includes three 300 h.p. boilers for heating purposes, supplying a two-pipe, underneath heating system. Fans supply necessary ventilation for the basement as well as fresh air to

the entrance and fresh air and exhaust to the James Simpson Theater. There are the usual plumbing pumps and a refrigerating system for various purposes. There is also a 1000-gallon fire pump, and mains lead out through the building. There are three elevators, one for passengers rising the full height of the building, a large freight elevator for the handling of exhibits, and an auxiliary elevator for taking in material from the terrace to the basement. The main drainage system consists of a 24-inch sewer running to the lake and a 12-inch sanitary sewer running to Indiana Avenue. Water supply is taken from Indiana Avenue through an 8-inch supply main.

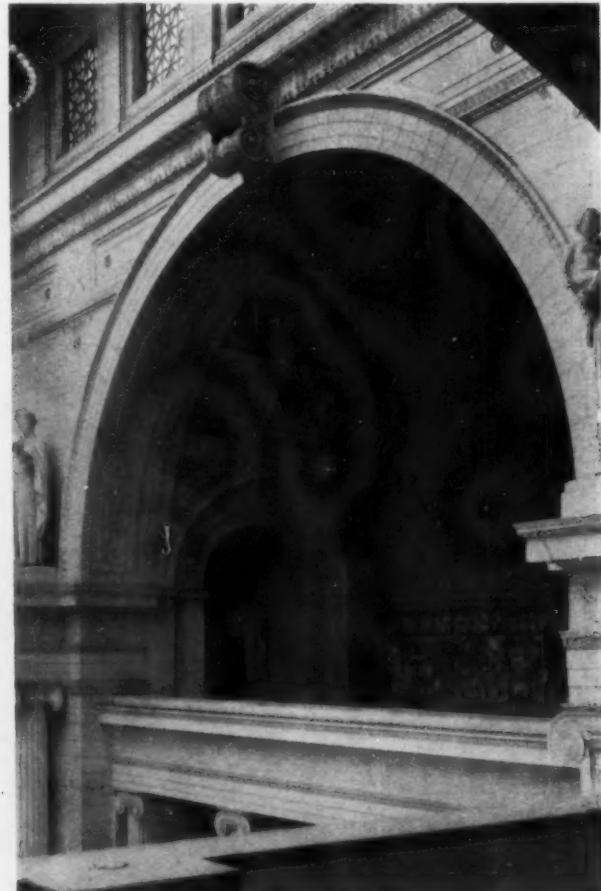
The work on the landscaping and terraces now being carried on will complete a setting for the building, which will stand for all time as a monument worthy in all respects not only of Marshall Field, but of the day and generation in which he lived.

The development of the Museum proves what may be done when municipal authorities coöperate with individuals or associations prepared to carry on some important work of a public nature. In this instance little could have been accomplished had not the South Park Commissioners aided in supplying a site for the Museum by securing the filling in of lake area, thus providing an appropriate location for buildings suitable to house an important Chicago institution.

Additional illustrations appear on Plates 11 and 12.



A Typical Exhibition Hall



Detail of Gallery, Stanley Field Hall

The Princeton Inn, Princeton, N. J.

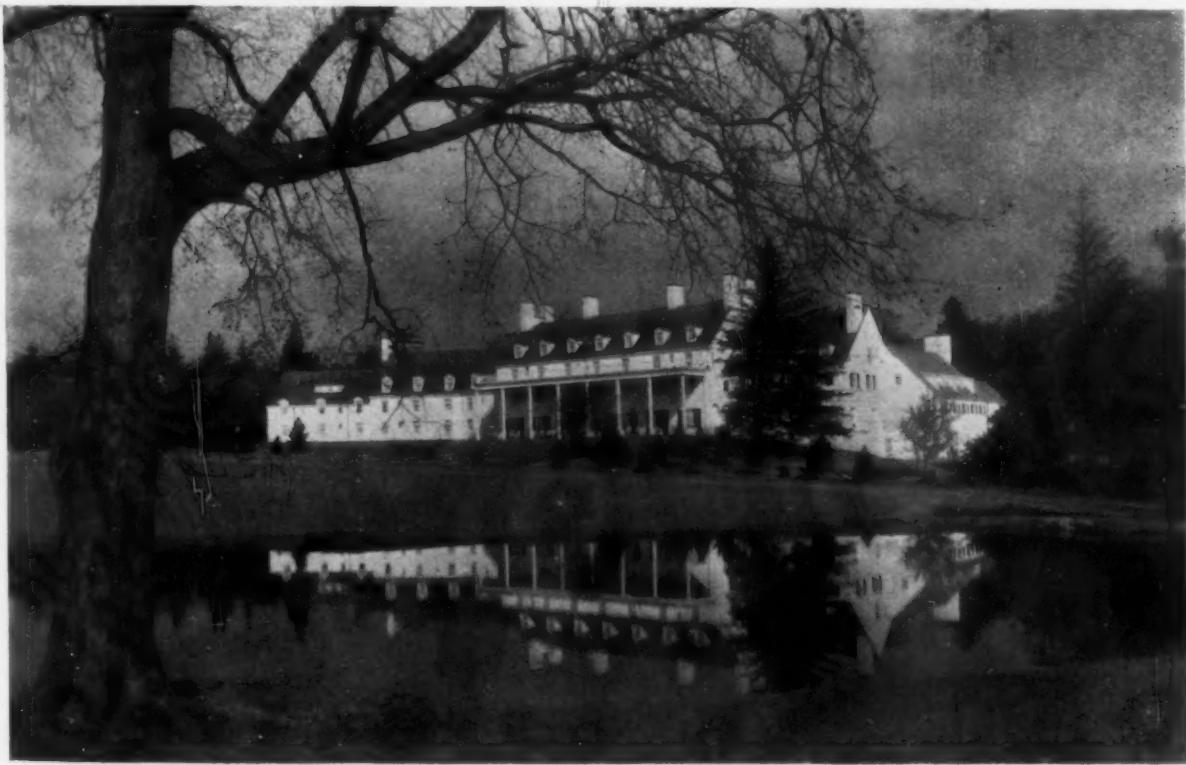
ANDREW J. THOMAS, Architect

WHAT more interesting problem could an architect be asked to solve than that of designing a modern inn for an ancient seat of learning?

The Princeton Inn, although not officially a part of Princeton University, was promoted by a group of Princeton alumni, primarily to accommodate the needs of the University, situated as it is in a small town which has hitherto lacked a large modern hotel. Since it is in a sense identified with the University, the sponsors of the Inn felt that it should be designed in the spirit of the University. To this end they chose a beautiful site overlooking the golf course, with the splendid Graduate School and its famous Cleveland Tower in the distance across the golf course. A long, rambling grouping seemed best for appearance's sake, instead of the usual small city hotel, which obviously is the economical type, but which would have been a blot upon the beautiful Princeton landscape. Another requirement which had to be met was that any hostelry in a college town must be planned in an elastic manner. It must be arranged not only to accommodate the few professorial families which prefer hotel to home life, and to provide for the intermittent visits of students' relatives, but it must also be equipped to take care of crowds of visitors, and of alumni returning for

athletic events and college celebrations. For these reasons, to design an inn which may be managed economically for the accommodation of the ordinary, small number of guests and the occasional crowd is a difficult problem, requiring much thought and study.

The Inn which has been recently completed at Princeton seems to successfully and attractively meet all necessary requirements. Its fine location is only a short distance from, and almost in sight of, the railroad terminus. As approached from the station the building stands on level ground, and its whitewashed brick walls and high colonnaded portico screened by picturesque old apple trees make an attractive picture for the arriving visitor. In its general design as well as in its details this inn possesses a great deal of old time charm and quaintness. The building is sufficiently broken up by bays and low wings so that its actual size is not at first appreciated. The four stories do not make the building look high, because of its length and the high gambrel roof. The varying and carefully studied scale of the window openings adds much to the early American quality of the building, which recalls the architecture of the eighteenth century. Built partly of local field stone and partly of brick, roughly laid in a style called "skintled," the exterior whitewashed walls have an interesting textural value. In construction

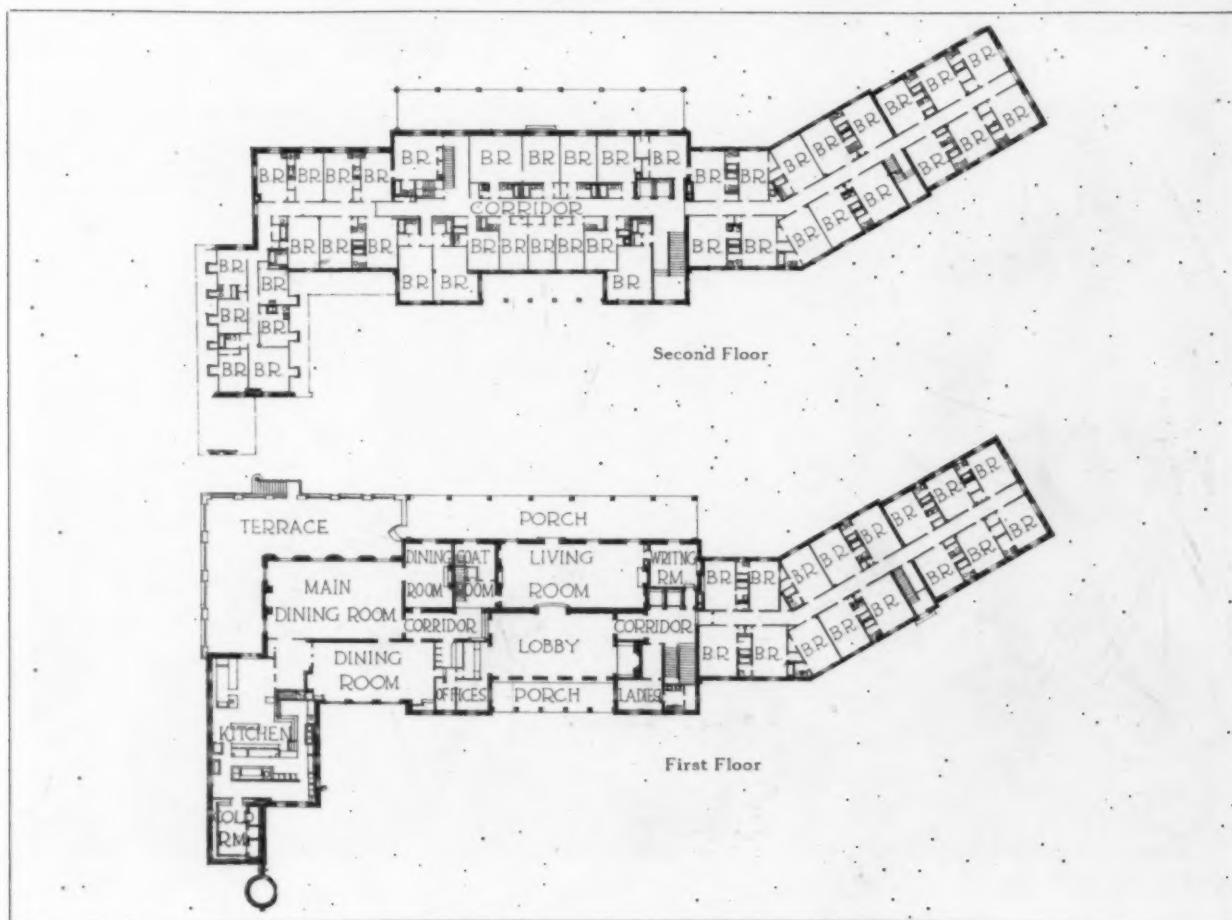


Photos. Van Anda

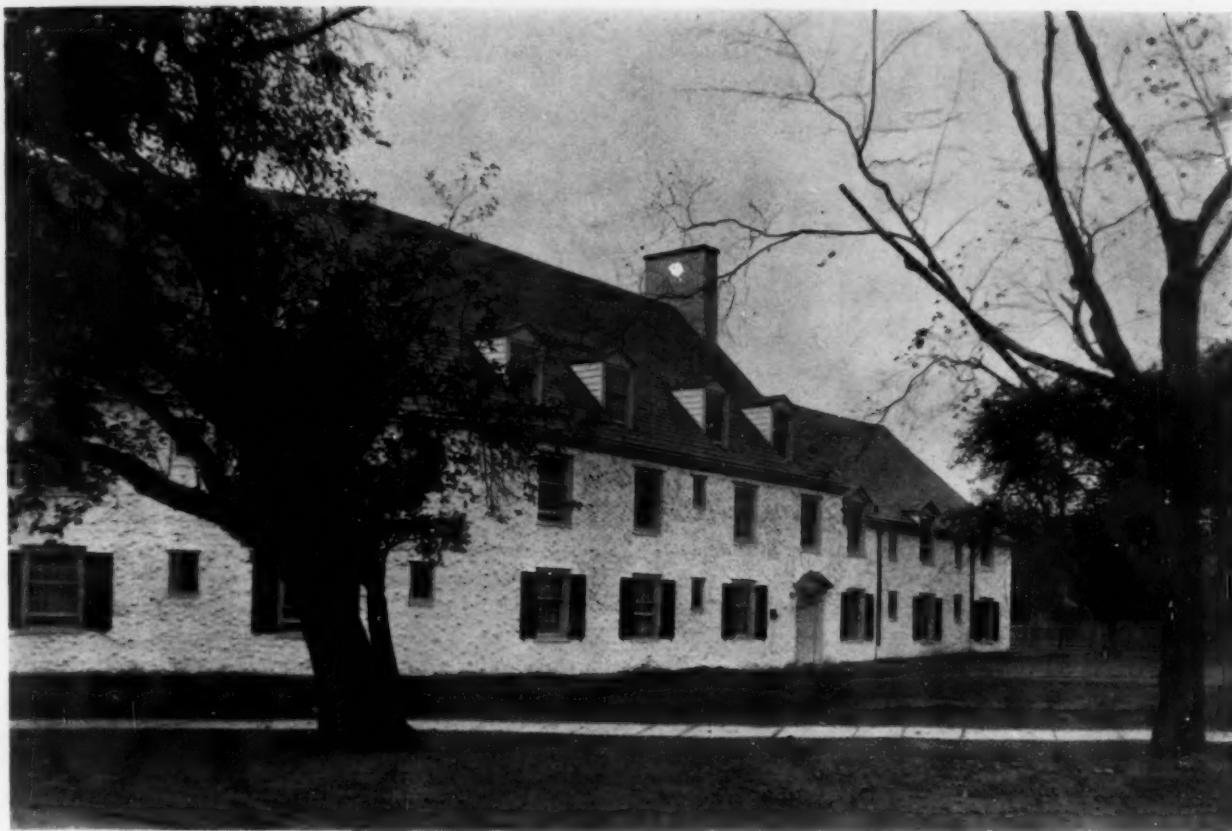
The Princeton Inn from the Golf Course



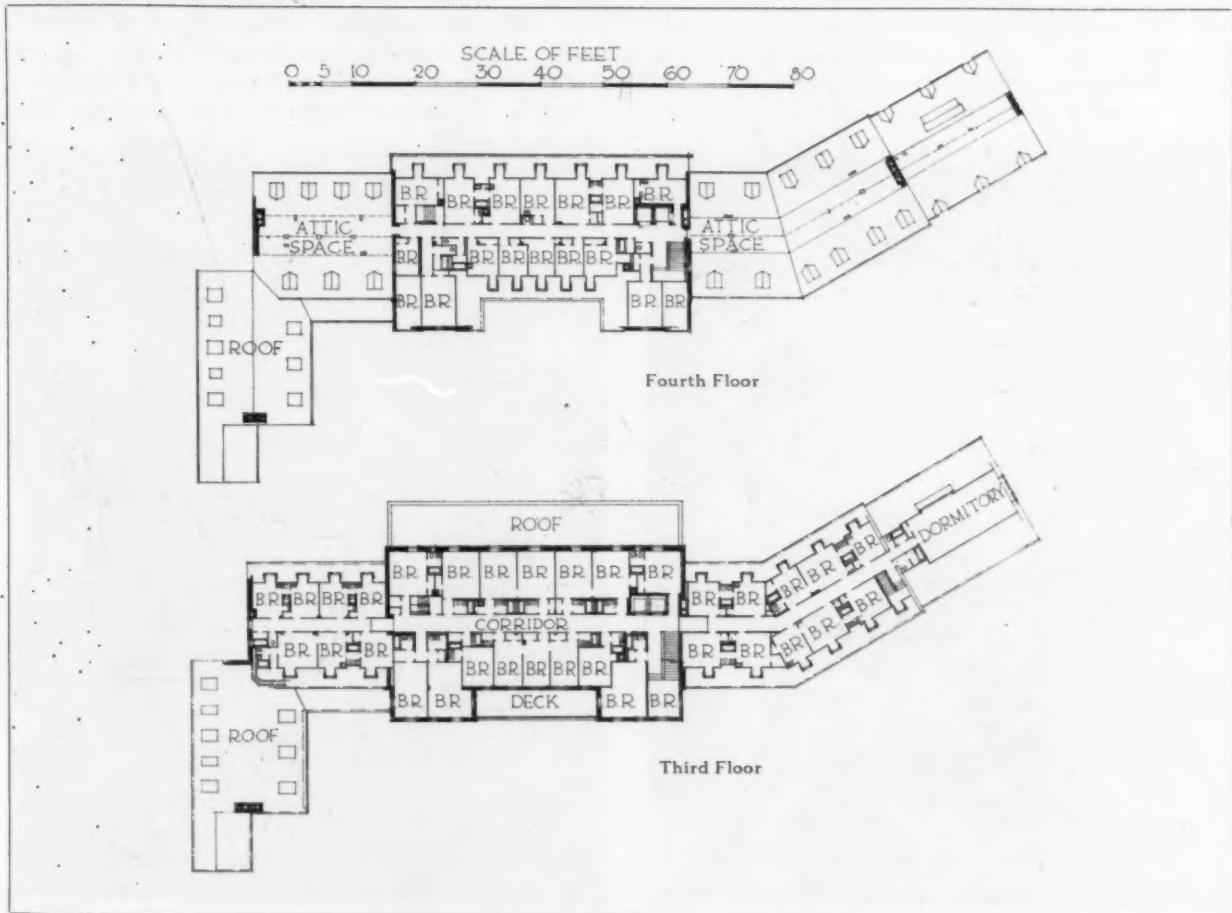
ENTRANCE FRONT



THE PRINCETON INN, PRINCETON, N. J.
ANDREW J. THOMAS, ARCHITECT



BEDROOM WING



THE PRINCETON INN, PRINCETON, N. J.
ANDREW J. THOMAS, ARCHITECT



One End of Living Room

the building is of reinforced concrete, except for the framing of the roofs which is timber. The stairways, however, are fireproof, and the roofs are covered with slate. On the first floor, blinds and paneled shutters painted a blackish green add to its Colonial character and homelike atmosphere.

The plan shows a main building 105 feet long by 85 feet wide, from which low wings extend north and south. The northern wing, in length about 110 feet, extends at an angle of 30° toward the northwest, while the wing at the south runs parallel to the main building a distance of 49 feet, and then continues at a right angle 73 feet farther. This variation in the positions of the two wings makes the mass of the building outside and the layout inside more interesting and rambling.

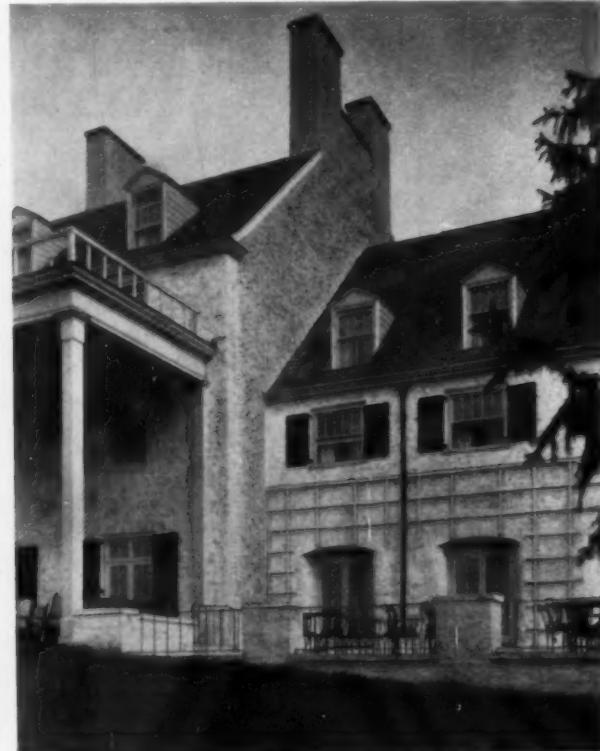
The entrance side of the Inn shows two projecting

bays, which form a recessed porch 11 feet in depth. This porch has a two-story portico, formed by slender square posts with simple caps, and light entablature and balustrade above. The main entrance door, illustrated on page 73, shows an interesting design in the Colonial style, with pilasters and glass transom in which small arches divide it into six glass panels. An unusually heavy entablature, surmounted by a light iron railing, protects the casement window extending down to the level of the second floor. Large lanterns of interesting design, suggestive of early American work, balance the entrance door on either side. The large, white, paneled doors with their eagle knockers give a domestic touch to this principal entrance, which opens directly into the lobby.

On entering, the large lobby greets the visitor. At one end an arched opening leads to the office of the Inn, which is balanced at the other end of the lobby by a similar archway opening into a fireplace alcove with recessed seats on each side. This arrangement of the lobby gives the hospitable, informal atmosphere of an old country tavern. Opposite the entrance door another large archway leads down two steps into the great living room. One of the striking features of the plan is the vista obtained as the visitor enters the front door and looks west through the opening from the lobby into the living room, and then out through the long casement doors opposite, which open onto the broad west porch. This vista through the Inn carries the eye out across the sloping lawn and a pond which lies in a hollow of the golf course to the distant spire and roofs of the beautiful group of English Gothic buildings of the Graduate School of Princeton University. The airy spacious-



West Elevation, Overlooking Golf Course



Corner of Terrace and West Elevation

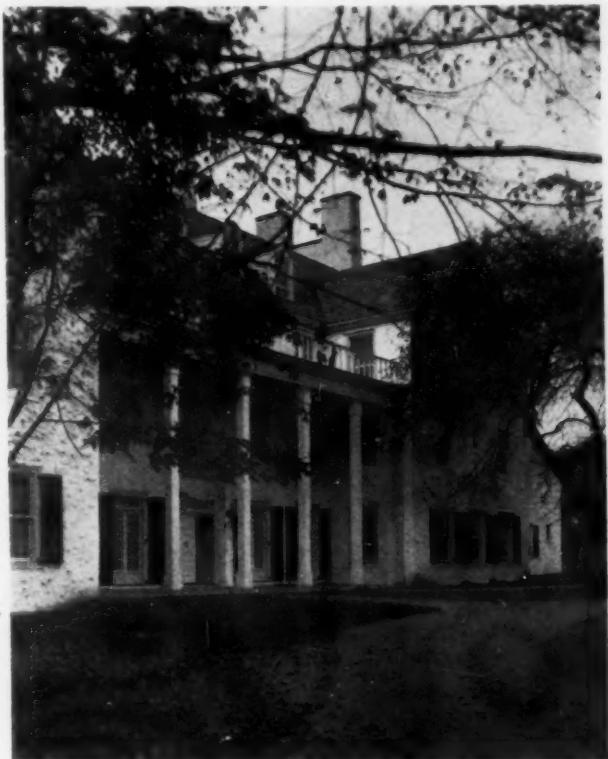
ness and the cheerful lightness of all the principal rooms in the Inn produce to a remarkable degree the atmosphere of a private country home. The long living room, which is painted white and finished in the style of the early Republic, has an attractive fireplace with paneled overmantel at each end. Comfortable couches and easy chairs, together with tables holding old fashioned lamps, are scattered about the room and hospitably grouped about each of the fireplaces. The walls of this room are painted gray and the woodwork white, which makes a good background for the one-tone blue carpet rugs and the gay printed linen furniture coverings and window hangings, in shades of blue, green and old rose.

At each end of the entrance lobby corridors lead to the north and south. The corridor on the north leads to the elevators, the main stairway and the women's retiring room, while that at the south leads down three steps to the two large dining rooms. The smaller of these dining rooms is decorated in the early American style of the first settlers in the late seventeenth century, with flagstone floor, pine paneling, beamed ceiling and an old fashioned brick fireplace. The larger dining room is decorated in a more formal adaptation of the Colonial style, with white painted woodwork and yellow plaster walls. The tables and chairs in this room are finished in mahogany in the Windsor style, and the lighting fixtures are careful reproductions of early American oil and candle lamps. Conveniently located in a corner formed by the two dining rooms is a large serving pantry which leads directly into the kitchen, a room 36 feet wide by 50 feet long, lighted by many

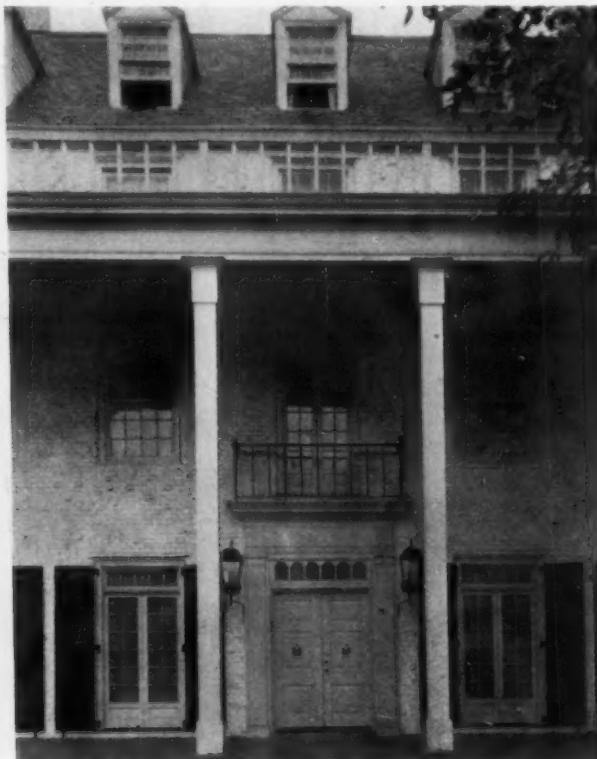


Fireplace Alcove in Lobby

windows on three sides and opening directly at the east onto an open terrace where tea is served in the afternoon. At the end of the kitchen wing is a cold storage room 18 feet square. From one corner of this room a whitewashed stone wall, broken by a very picturesque round gatehouse, shuts off from view the service yard of the Inn. Between the living room and the main dining room is a private dining room, a men's coat room, and a secondary stairway opening off the south corridor. At the north end of the living room, back of the elevators, is a writing room, 12 feet square, with fireplace and short entry which leads to the north corridor. The first floor of the entire northern wing is occupied by 16 single bedrooms with individual baths, intended for the use of bachelor guests. Running the entire



Main Entrance Drive



Entrance Door and Portico

105 feet of the west side of the main building, is the wide, two-story porch, suggesting the famous eastern porch at Mt. Vernon.

The second floor plan shows an interesting arrangement of single and double bedrooms, all of which have individual baths and spacious closets. Of the 107 bedrooms in the Inn, 45 are located on this floor. These bedrooms are decorated in a simple manner, with white painted woodwork and quaint, old fashioned wallpaper and reproductions of early American furniture in pine, maple and mahogany. On the third floor are 32 bedrooms, about two thirds of which have individual baths. At the north end of this floor is located a large dormitory for men, which is equipped with 20 single beds. Adjacent to this dormitory are two lavatories and showers. There is a fourth floor only in the main building. Here are located 14 additional bedrooms, only two of which have individual baths, as general baths are located at both ends of the long corridor dividing the rooms.

The basement floor is largely devoted to mechan-

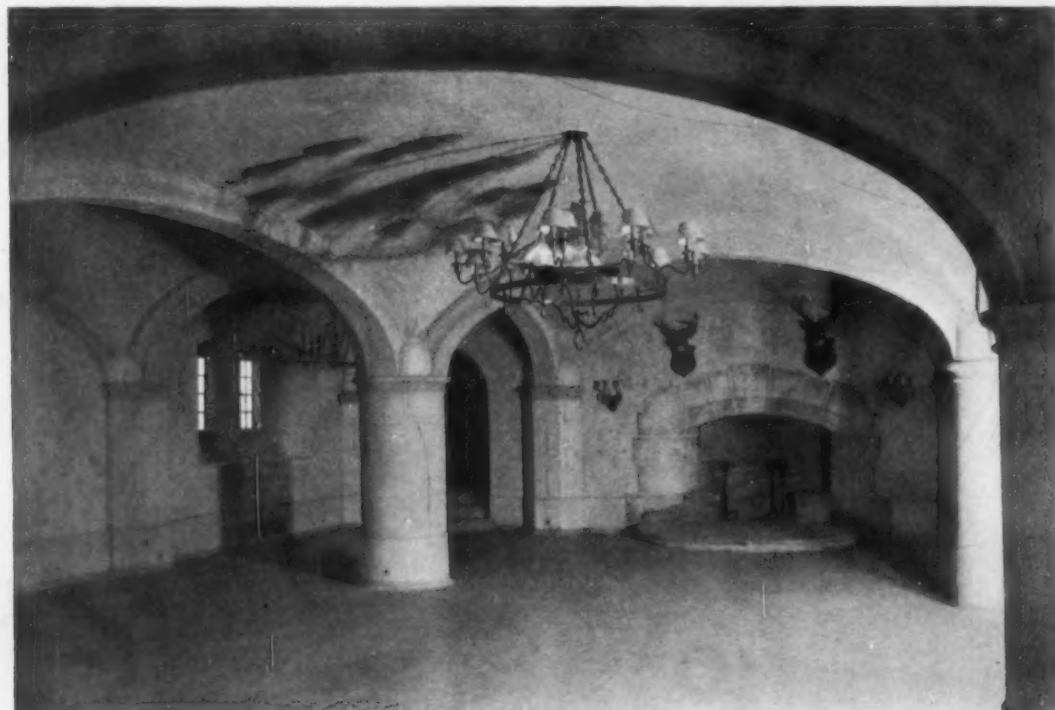
ical equipment, boilers and coal bins, together with storage and servants' rooms. A completely equipped laundry is located under the kitchen and southwest terrace. The only public room on this floor is a large grill room located in the north wing. This room is attractively finished in a rugged adaptation of the Tudor style, massive imitation stone piers supporting the heavy ribs of the low vaulted ceiling. The wrought iron chandeliers in this room are of the period, as are also the candle wall brackets. The chandeliers show an added feature of interest in the introduction of a model of a full rigged clipper ship of tin and iron. Behind the grill

room are a large locker room and toilet and shower facilities for the use of golfers who are hotel guests.

With such unusual care have all of the exterior details as well as the locating and spacing of the windows been studied that the effect of the whole design is remarkably consistent and in excellent scale. The atmosphere is that of hospitable country life and agrees well with Princeton's rich traditions.



Gate House to the Entrance Court



Unfurnished Grill Room in Basement

The House of Ernest S. Barkwill, Esq., Cleveland

CHARLES S. SCHNEIDER, Architect

ALTHOUGH located on property which only a short time ago was considered quite suburban, this interesting Georgian house is designed to meet the rapid encroachment of urban surroundings. The house shows in design a careful and successful study of balanced detail combined with pleasing areas of interesting brickwork. The brick, specially made for this house, possesses an unusual range of varying tones of red, copied from old English handmade brick of the Georgian period. The trimmings are stone, and the cornice of the house, which is of wood painted white, is another characteristic feature of the period of English architecture made famous by Inigo Jones and Wren. For the roof, slates of random widths and varying colors are used, giving a pleasing contrast in both texture and material to the brickwork of the walls.

The plan shows an interesting arrangement. The

main part of the house is rectangular in shape, with two projecting wings at the rear. The shorter of these wings forms a sun-porch on the ground floor, while the other extends to the back of the property, including not only the service department of the house but the garage as well. In the angle formed by the main house and this service wing a small garden is laid out, the high brick wall of which gives a feeling of privacy and seclusion. This garden is one of the unusual and attractive features of the plan. Wrought iron balconies, grilles and gates are among the details which contribute to the success of the design as a whole.

The center hall leads from the entrance to the sun-porch and garden at the rear. The axial line, which extends through the doors of the front entrance and openings from the main hall to the sun-porch, is continued by a broad path through the



Entrance to Walled Garden

garden, terminating at a wall fountain. On the right of the entrance hall is a well proportioned living room, in which the windows, doors and fireplace are carefully balanced and centered. On either side of the entrance vestibule are cloak rooms. On the left of the entrance hall are the library and dining room. Good judgment is shown in restricting the window openings in the library to only one wall, thus permitting the successful use of recessed bookcases and wall panels for the fireplace end of the room, as may be seen in the illustration on Plate 14. The architectural treatment of the dining room, with its built-in corner cupboards and shallow bay windows, is carefully carried out, as are all of the interiors, in the Georgian style. The consistency evidenced by the use of a definite style of architecture, not only for the exterior but also for the interior of this house, is most laudable and worthy of emulation. Beyond the dining room are the butler's pantry, kitchen, servants' hall, etc., which are paralleled by a corridor leading through



Detail of Entrance Door

an open garden arcade to the garage at the rear. This must be a very comfortable and pleasant house to live in at any season of the year; the garage may be reached without going out of doors in the winter, and the walled garden, upon which open the casement doors of the living porch and the arcade, furnishes a cool and secluded retreat for the warm, summer evenings.

The house is furnished and decorated in an attractive and homelike manner. Window draperies are hung within the reveals, leaving the carefully detailed trim exposed. Another unusual feature, which is becoming constantly more popular in interior decoration,

is the covering of all of the floors with carpeting in single colors. The floors of the sun-porch and entrance vestibule are of black and white marble. The furniture in the various rooms is of the American Colonial and English Georgian periods, thus emphasizing the character of the style consistently and uniformly followed throughout the design of this interesting and well designed and furnished house.



Detail of Stairway



Corner of Living Room



The Laconia High School, Laconia, N. H.

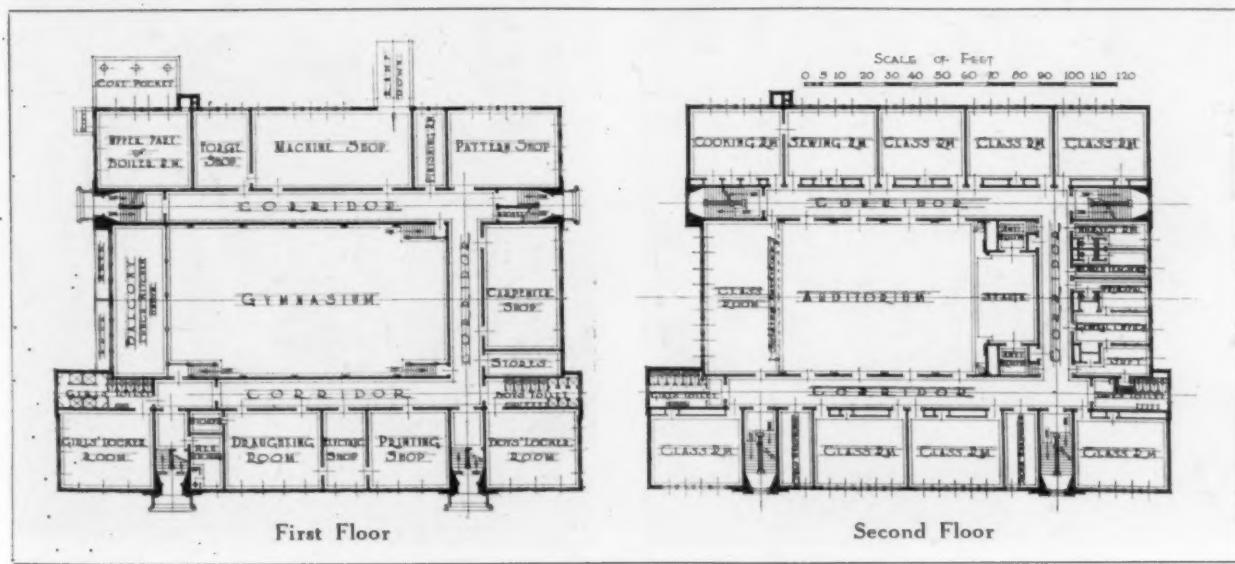
PHILIP S. AVERY, Architect

IN the Laconia High School the architect was confronted with the not unusual problem of designing with a limited appropriation a building to meet rather extensive requirements. The program called for not only the usual high school classroom spaces, including science laboratories and a commercial department, but also a gymnasium, an auditorium to be used for civic purposes, and well equipped manual training and domestic science departments. The entire building was completed at a cost of \$227,695, the finished grading, walks and planting cost \$10,000, and the equipment cost \$40,000. It may be seen, therefore, that economy of design and construction was the keynote throughout. The building, 165 feet long by 125 feet wide, is located 200 feet back from the street and is surrounded by well kept lawns. In the rear is a tract of eight acres

that will be developed shortly into an athletic field.

The exterior walls are of "antique" water struck brick laid in Flemish bond. The many dark headers and the uneven stretchers make an interesting and colorful wall. The cornice, belt courses, entrances, and other ornamental parts are of cast stone. The stair halls only are of fireproof construction. These are enclosed in kalomein and wire glass partitions. The auditorium floor, the balcony, and the roof over it are supported on steel girders, but all intermediate framing and all classroom framing is of wood. The finish on the ground floor is Carolina pine, while the other two floors are finished in native oak. Maple was used for all of the floors throughout.

The basement floor is 4 feet below the ground level, while the boiler room and the gymnasium are 6 feet lower. The boiler room is of fireproof con-



struction and contains two boilers. Adjacent to the boiler room are the coal pockets, with a capacity of 100 tons, the transformer vault, and the ash hoist. The switchboard for the building is in a steel cabinet in the boiler room. The gymnasium is 16 feet in height to the girders, and has a playing space 80 feet long and 50 feet wide. At one end is a balcony, under which are an equipment room, an office for the physical director, and a lunch kitchen. On the ground floor level, adjacent to the gymnasium, are showers and locker rooms for the boys at one end of the building and for the girls at the other end.

On the ground floor are the mechanical classrooms with accommodations for 145 boys at one time. In the rear are the forge room, of fireproof construction, the machine shop, a finishing room, and the pattern shop. At the end of the building are the woodworking shop and a storeroom for lumber. In front are the print shop, the electrical room, and the drafting room. Tool rooms for the various shops are under the stairways and in closets adjacent to the rooms. Next to the drafting room is a rest room, suitably fitted up for the men teachers.

On the first floor are the kitchen and the sewing rooms for the domestic science department, and nine recitation rooms. Each recitation room in the building accommodates 35 pupils and has the usual equipment of teachers' cupboards, telephone, etc. In the

central part of the building is the auditorium with a seating capacity of 806. At the rear are folding doors, which make it possible to open two classrooms so that 1,100 people can be seated. It is possible to darken the auditorium so that motion pictures can be shown at any time during the day. The stage is 20 feet deep and 30 feet wide, and has dressing rooms on either side.

The laboratories are located at one end of the second floor, with a lecture room near by. At the other end are the bookkeeping room and the type-writing room of the commerce department. There are six recitation rooms on this floor besides the main study hall and library. All recitation rooms have east or west exposure. Coat rooms for boys and girls are located next to the front stairways on the first and second floors, while toilets and lavatories for the two sexes are in rooms at either end of the front corridors on all three floors. By this arrangement there is no waste space at the ends of the corridors. The radiators throughout the building, with the exception of those in the auditorium and the gymnasium, are on the exterior walls and have asbestos-lined shields in front of them. Fresh air is admitted to the rooms from the windows over the radiators by means of glass deflectors. The foul air ducts are in the interior walls. The indirect system is used in the auditorium and the gymnasium.



Detail of One of Main Entrances



Detail of One of Side Entrances

✓ The Grant Park Stadium, Chicago

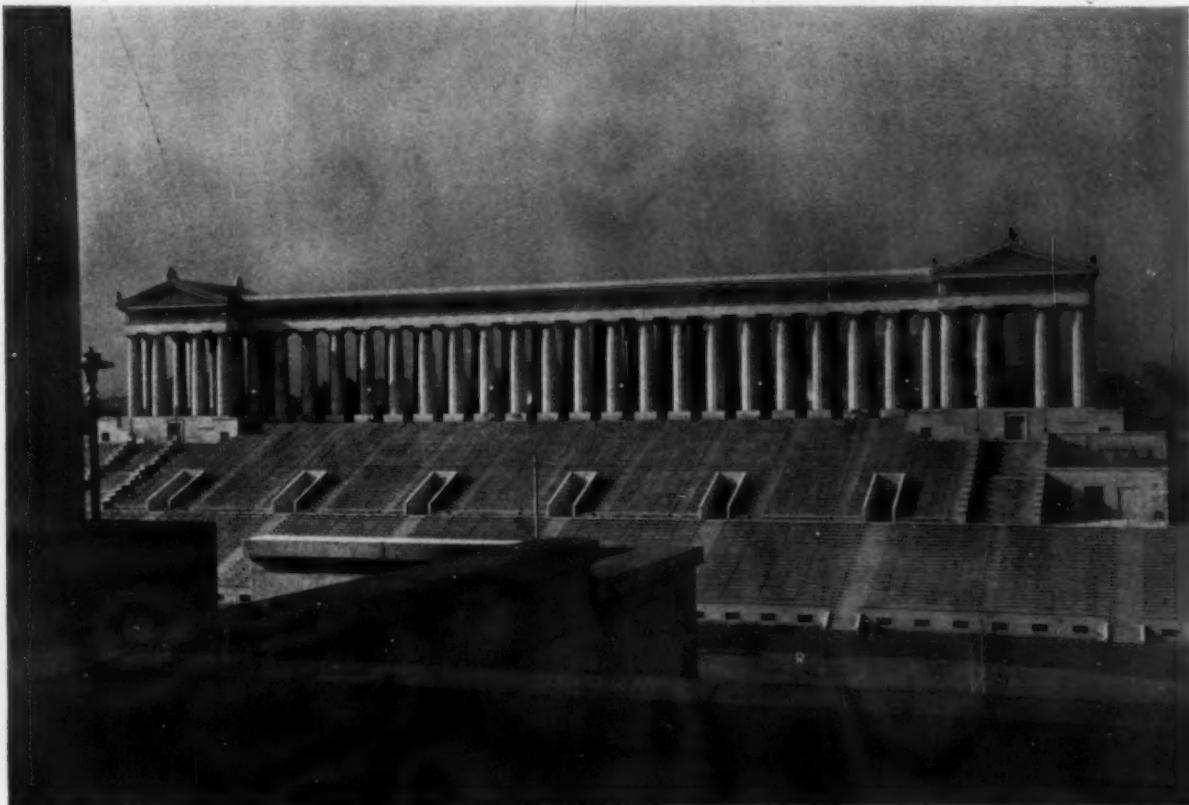
HOLABIRD & ROCHE, Architects

GRANT PARK is regarded by all Chicago as its Place of Pageants. Whether it be a municipal Christmas tree or the Victory Way, a Pershing parade or a military review, there is no question as to the scene. Quite naturally, then, the city was pleased when it was announced that the South Park Commissioners, under whose direction Grant Park is maintained, had determined to build there a stadium in which vast crowds could be accommodated. The Commissioners held a competition in which several of the larger firms of Chicago architects took part. As a result of the decision of the jury of award, the design of Holabird & Roche, was given first place.

From the moment that Grant Park was selected as the location for the new Field Museum, the architecture of all future structures there was determined. The stadium, now nearing completion, is located just south of the museum, and is designed in the Classic Greek style. It is a U-shaped amphitheater, closed in on the south by a semi-circle and so planned that the long axis of the field is in the north and south direction. Monumental porticoes surmount the east and west stands, and the center of the south end is the site of a memorial to the Chicago men who lost their lives in the World War. The Doric columns of the colonnade closely follow those of the portico

in the temple of Athena, commonly called the Parthenon. Exhibition halls under the stands are copied after some of the hypostyle halls in Greek temples, the Ionic columns and the doors having been modeled from examples in the Erechtheion. All details throughout the structure are adapted from authoritative Classic Greek sources.

In compliance with the terms of the competition, two requirements were considered of paramount importance: First, that the proposed stadium should in no way conflict with the Field Museum. Second, that the majority of the permanent seats should be centered around a comparatively small area, to afford to the greatest number the best view of such athletic games and similar events as could not be expected to fill the stadium to full capacity. In fulfillment of the first requirement, the architects have considered the Field Museum as the head of the composition, the axis of the stadium being the same as that of the museum. The north end of the arena is left entirely open, affording to the spectators an unobstructed view of the museum. North from the east and west porticoes the permanent seats are entirely below the grade of the esplanade in front of the museum. In this north sector the structure is merely a series of terraces, finishing opposite the end pavilion of the museum in simple sculptured walls



East Stand, Grant Park Stadium, Chicago

and stairways. By this treatment of the north end, conflict with the architecture of the museum is entirely avoided. In the fulfillment of the second paramount condition in the problem, that of seating, the width of the arena is made as small as practical, being 300 feet between walls. The east and west stands, those of chief importance in this solution, are made higher than the north sector to give a larger number of seats in the central part of the stadium. The importance of these stands is emphasized by porticoes, at the center of which a football field is located. The finish of a quarter-mile running track and of a 220-yard straightaway is opposite the reviewing pavilion at the center of the west stand. These two stands combined with the theater seats at the semi-circular south end contain the larger part of the permanent seats, and all are of nearly equal value for most of the events and displays that will be presented in the arena. In order to concentrate the seats around a small area, it was necessary to extend the height of the stand around the small central area to a grade above that of the esplanade at the north. This is justified by the designers because it gives the spectators a better view of all the details of spectacles held in the arena, and because the arrangement permits the north sector to be kept at a low elevation. To aid further in this the circuit of the amphitheater is slightly bowed in order to give the proper lines of sight and, at the same time, to keep the stands as low as possible.

The permanent seating capacity of 55,000 includes the main east and west stands, full height; the theater to the south, except the upper terraces; and the section in the north below the esplanade grade. An additional temporary seating capacity of 40,000 is provided for by the use of the upper theater terrace, three terraces north of the main east and west stands, and a portion of the north end of the arena. All the 95,000 seats surround the whole stadium uniformly to the top promenade indicated in the illustration on page 79. Terraces thus form bases for temporary seats, and under this arrangement the seating becomes especially flexible, since any number of terraces may be filled with temporary seats, leav-

ing a finished structure in the event they are not all filled. The terraces also have the advantage of serving as promenades for the spectators and sight-seers. A promenade at the grade of the esplanade extends entirely around the stadium. From this promenade, at suitable intervals, extend passageways and ramps leading to the banks of the seats. People may enter at the north end of this level for any of the terrace levels and proceed to the section they are seeking. This promotes convenience of access.

Entrances are provided at appropriate intervals along the exterior of the stadium. These lead through the structure, and by tunnels and ramps to the various banks of seats. Direct access to the upper promenade is furnished by stairways. In addition, all main aisles in the amphitheater lead directly to the arena, where egress is furnished by the entire north end, or by passages south of the main east and west stands.

Pageants and large bodies of troops would enter from the north, pass south by the west reviewing stand, circle the theater with its reviewing stand, and then move north and out again. In this way there need be no limit to the number of troops participating or the size of pageants being presented. In addition, two 30-foot

passageways from the arena are provided at the south end of the main stands. The superstructure includes a wide promenade, covered on the east and west by two monumental porticos. Along this promenade sockets are provided for display of flags and bunting, and bases for searchlights are installed.

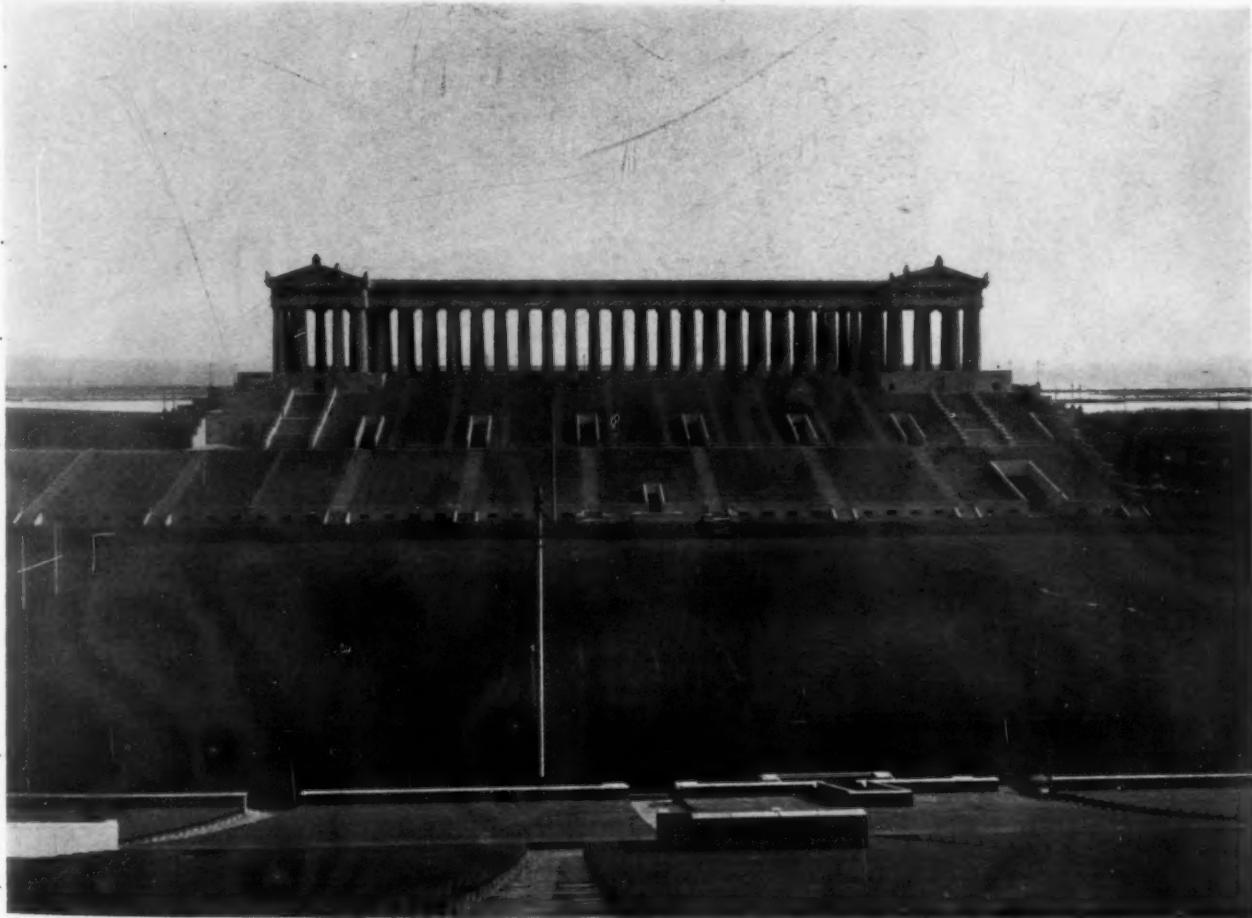
The space under the main east and west stands and under the theater has been left free from columns. This is divided into three large halls, having approximately 125,000 square feet of floor area and making space available for large automobile, live stock, dairy, industrial and educational or other exhibitions. Temporary booths or stalls may be erected to meet the requirements of the occasion. Although the program includes only heating for accessory rooms, this space could very easily be prepared for any permanent winter uses that may be required, such as all year round swimming baths and gymnasiums, recreation and assembly rooms or a civic concert auditorium, or to fill any other future need.



Detail, Grant Park Stadium, Chicago
Holabird & Roche, Architects



VIEW OF THE NORTH STAND SHOWING FIELD MUSEUM AT THE LEFT

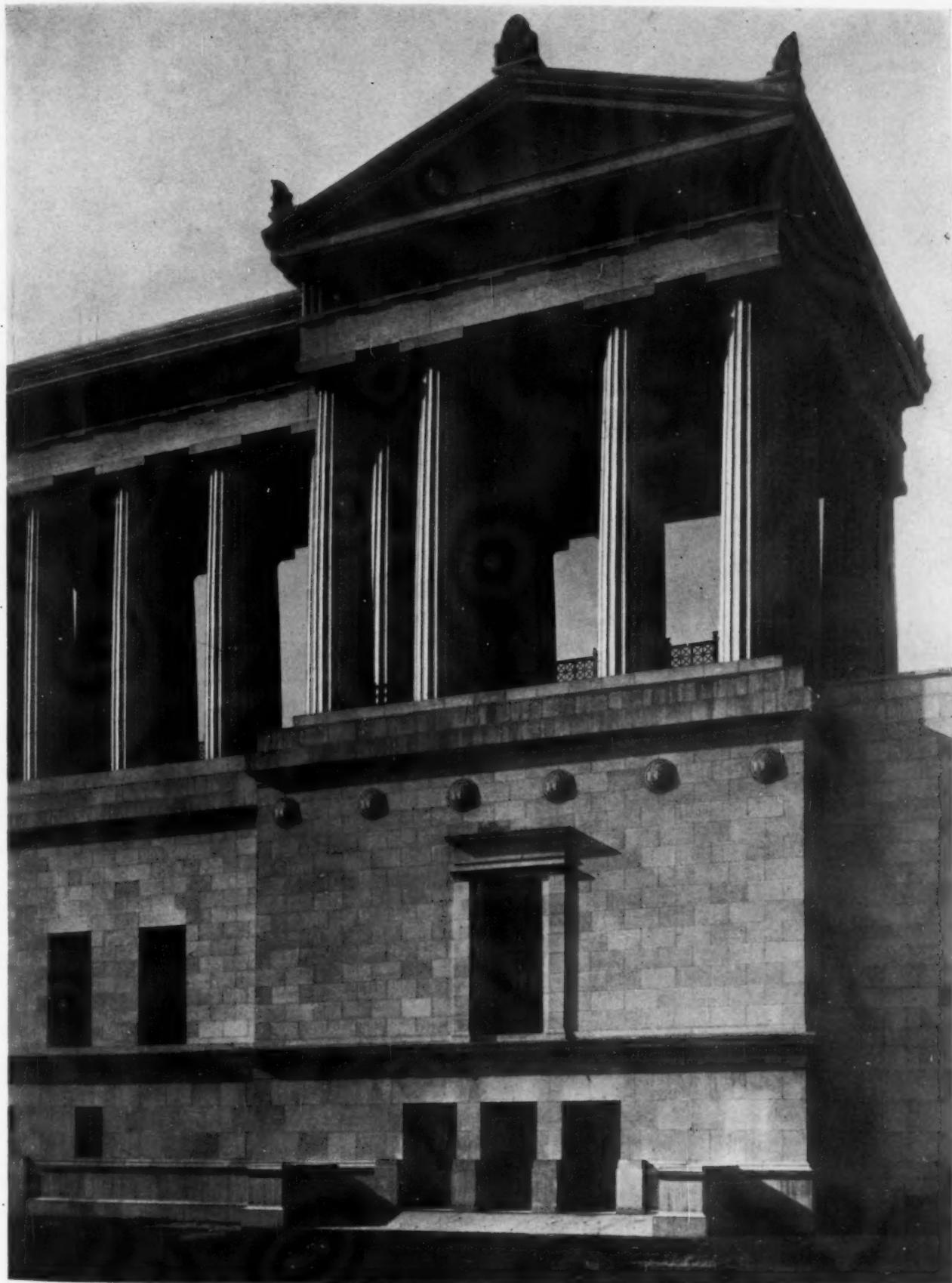
*Photos. Trowbridge*VIEW FROM THE OPPOSITE STAND ACROSS THE FOOTBALL FIELD
GRANT PARK STADIUM, CHICAGO
HOLABIRD & ROCHE, ARCHITECTS

Architectural
Library

FEBRUARY, 1925

THE ARCHITECTURAL FORUM

PLATE 10



EXTERIOR DETAIL SHOWING ENTRANCES
GRANT PARK STADIUM, CHICAGO
HOLABIRD & ROCHE, ARCHITECTS

Architectural
Library

FEBRUARY, 1925

THE ARCHITECTURAL FORUM

PLATE II



Photos. Tebbs & Knell, Inc.

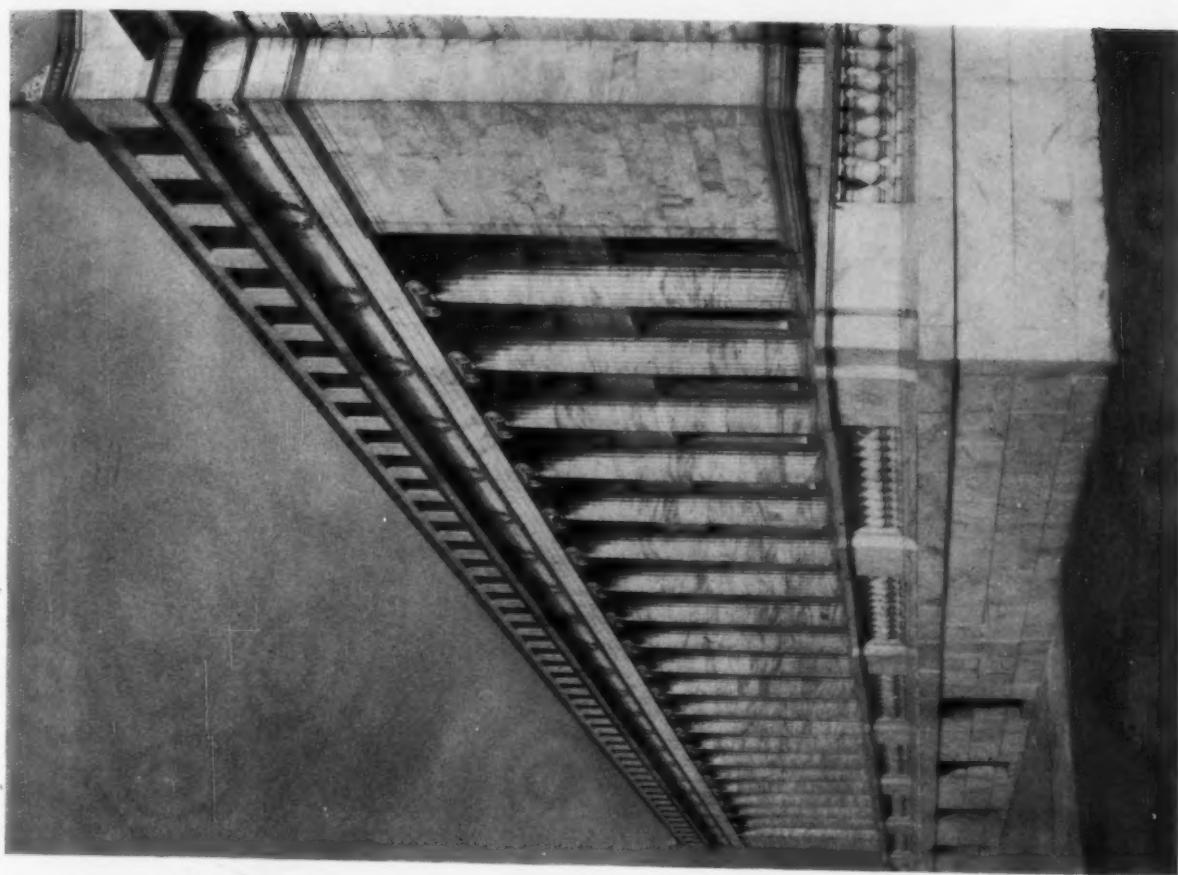
✓ DETAIL OF MAIN ENTRANCE
FIELD MUSEUM OF NATURAL HISTORY, CHICAGO
GRAHAM, ANDERSON, PROBST & WHITE, ARCHITECTS

Architecture)

FEBRUARY, 1925

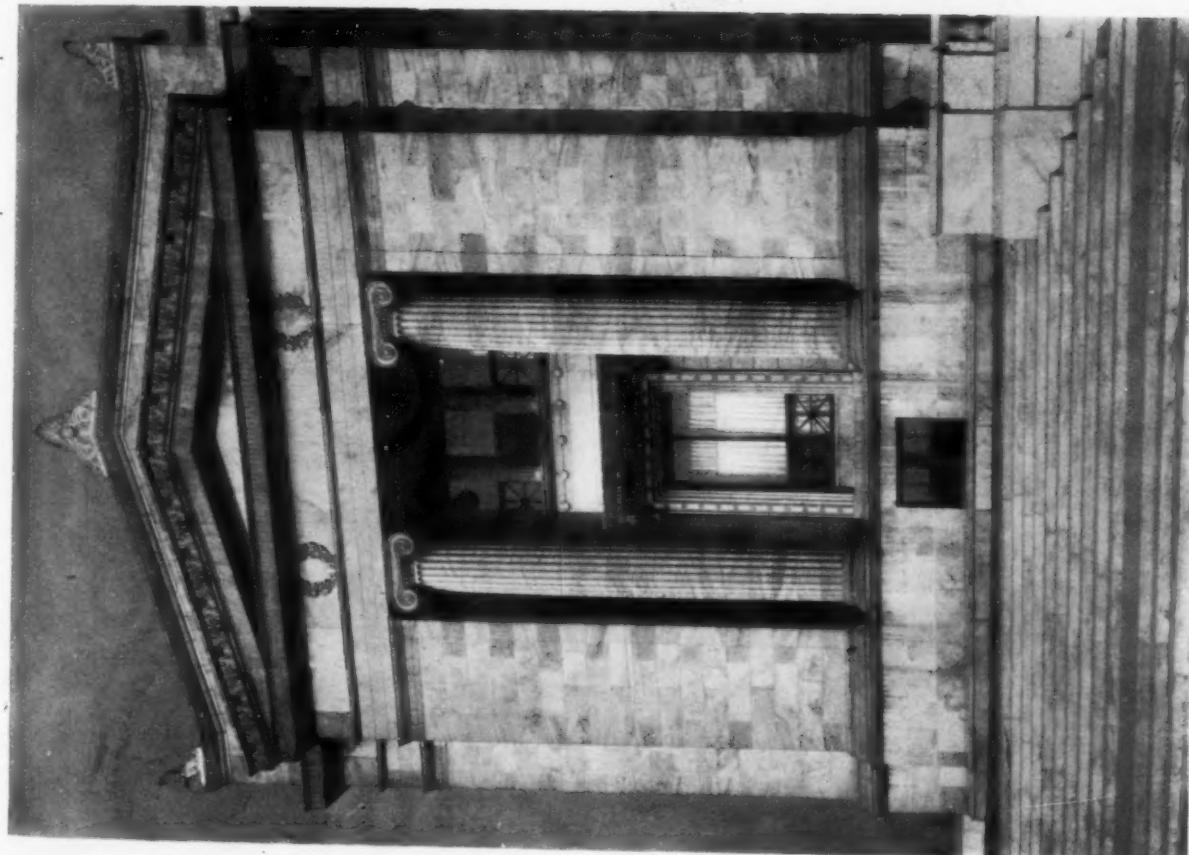
THE ARCHITECTURAL FORUM

PLATE 12



END ELEVATION

FIELD MUSEUM OF NATURAL HISTORY, CHICAGO
GRAHAM, ANDERSON, PROBST & WHITE, ARCHITECTS

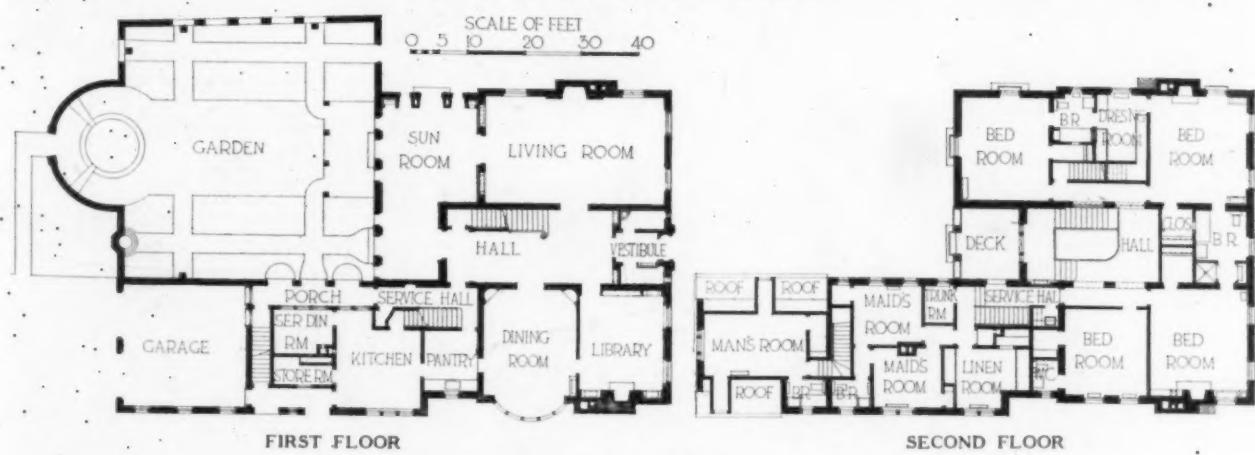


DETAIL OF END BAY

Architectural
Life



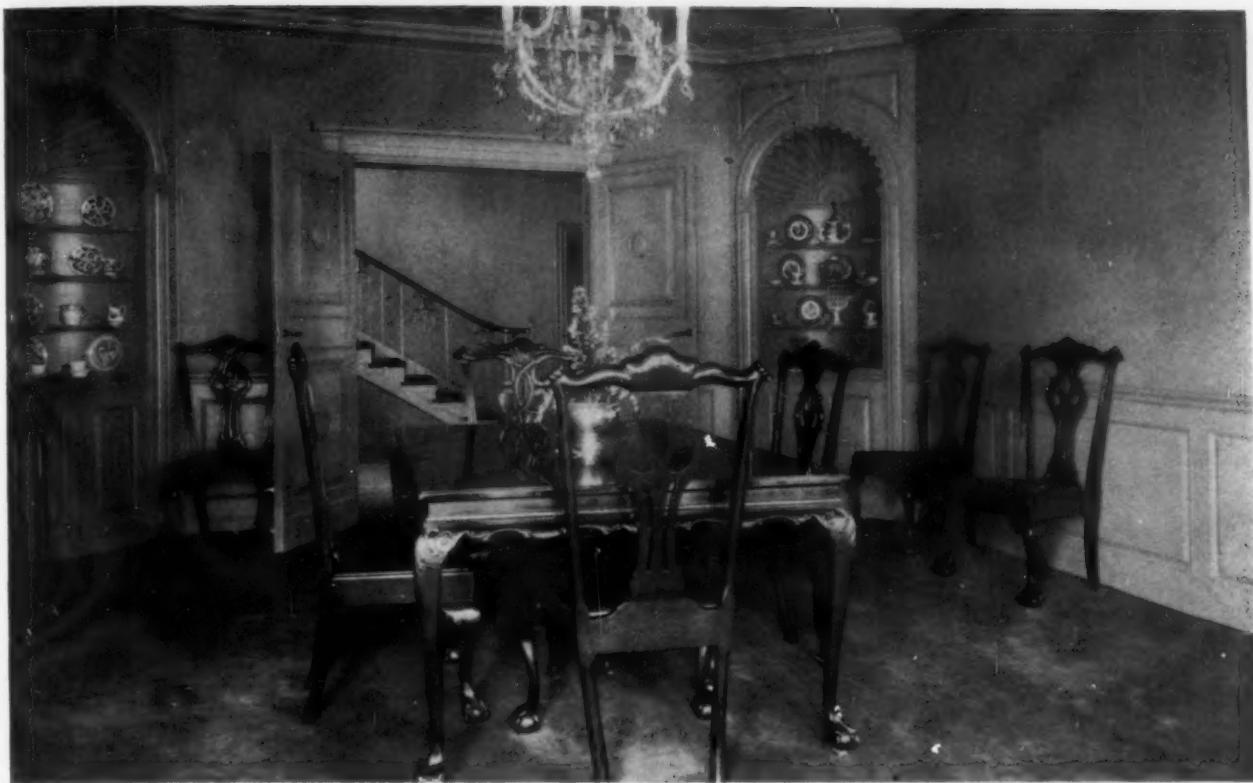
ENTRANCE FAÇADE FROM THE STREET



HOUSE OF ERNEST S. BARKWILL, ESQ., CLEVELAND

CHARLES S. SCHNEIDER, ARCHITECT

Architectural



DINING ROOM



Photos, Tebbs & Knell, Inc.

DETAIL OF LIBRARY

HOUSE OF ERNEST S. BARKWILL, ESQ., CLEVELAND
CHARLES S. SCHNEIDER, ARCHITECT

Architectural
Library

FEBRUARY, 1925

THE ARCHITECTURAL FORUM

PLATE 15



DETAIL OF LIVING PORCH

PRINCETON INN, PRINCETON, NEW JERSEY.
ANDREW J. THOMAS, ARCHITECT



DETAIL OF SIDE ENTRANCE DOOR

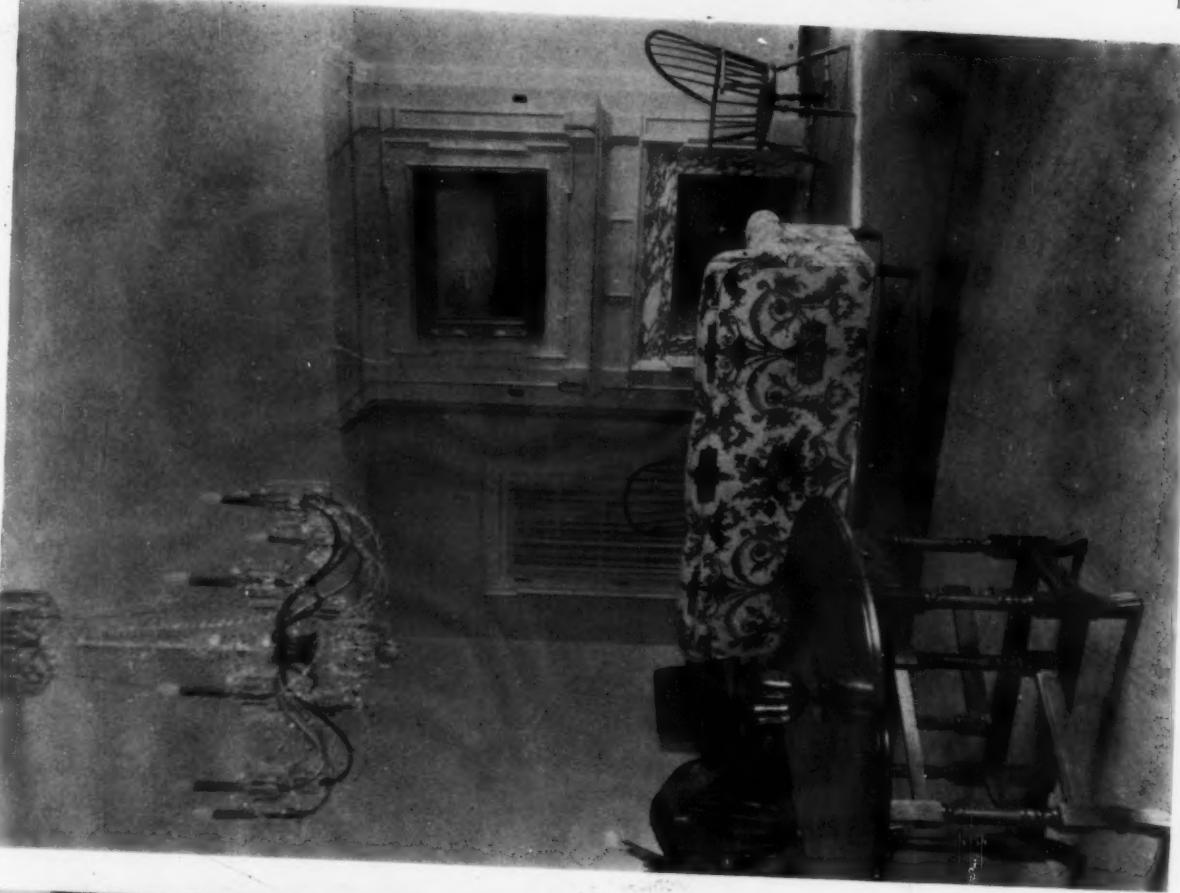
Photos, George H. Van Anda

Architectural
Library

FEBRUARY, 1925

THE ARCHITECTURAL FORUM

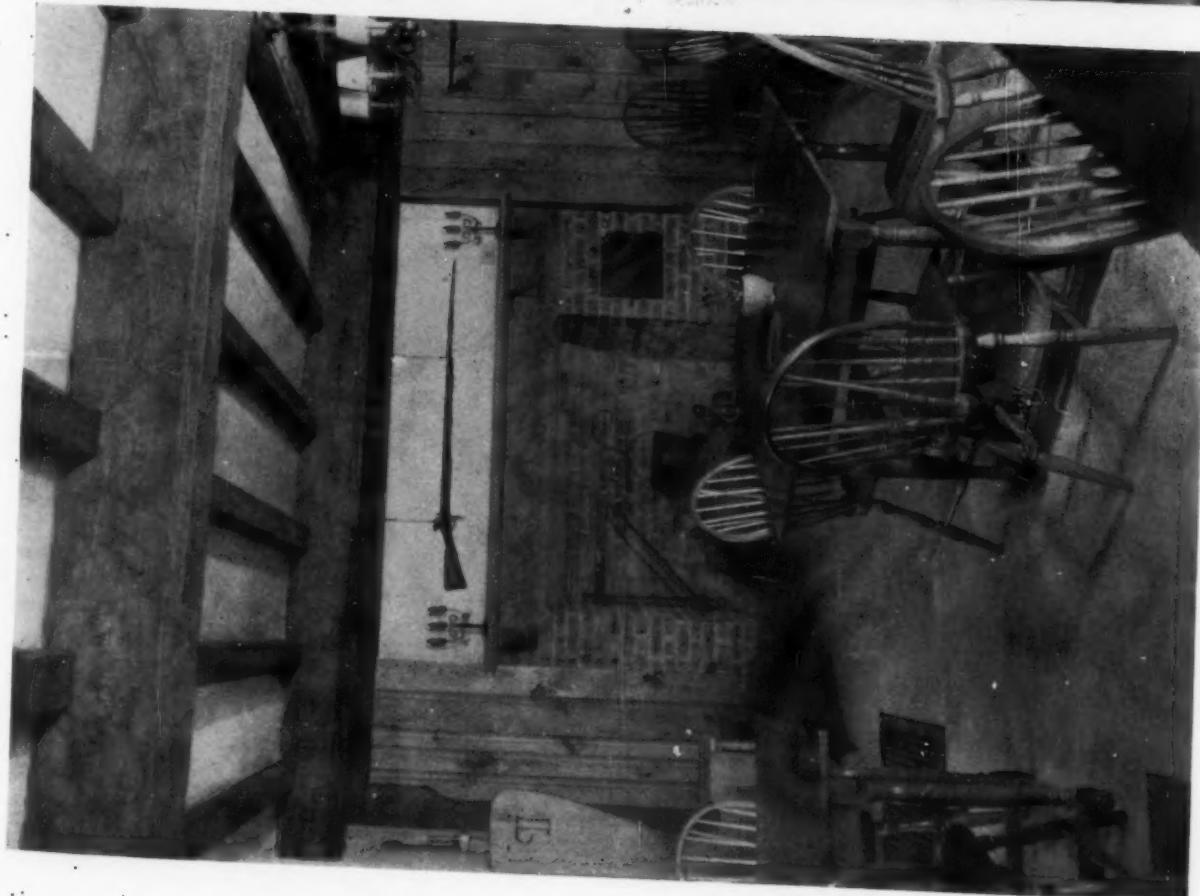
PLATE 16



DETAIL OF LIVING ROOM

PRINCETON INN, PRINCETON, NEW JERSEY

ANDREW J. THOMAS, ARCHITECT



THE TAP ROOM

Architectural
Library

Some Minor Charleston Houses

By ALBERT SIMONS

THE larger of the early Charleston houses have from time to time been measured, photographed, sketched and written up so much that not a few of them have become accepted classics of early American architecture, and, as with many classics, much of their appeal has become stale by too frequent repetition. Besides these well known and accepted types there are many smaller houses of considerable age, admirably built, and designed with a very apparent appreciation for mass, proportion, and picturesque grouping, all of which gives them much greater genuine charm than more correct and formal composition.

It is much to be regretted that many of these buildings, though irreproachably genteel in their heyday, have become in the passing of time surrounded by unsavory neighbors, and have slipped beyond the pale of decent habitation. Sometimes the unfortunates have been "reclaimed" by enterprising promoters, but, like many another engaging reprobate, they become stupidly banal when they assume smug respectability. To the painter, etcher or architect they are far more worth while in their unregenerate state, before their gay walls of Naples yellow and turquoise are made mournful with new paint,—penitential gray and soul-sick brown,—and before their simple doorways become encumbered

by pseudo "Colonial entrances," poor copies of good originals, perhaps in Germantown or Providence.

Some of these little houses have had the good fortune always to have been surrounded by congenial neighbors, so that they have never lost caste but have always been properly cared for by their owners, and have never suffered the indignities of radical and ill-advised "improvement." Among these well preserved houses perhaps one of the earliest is the frame dwelling at 60 Church Street. It is not known definitely when this house was built, but by comparing its character with that of larger houses whose dates are known it would seem to belong to that prosperous epoch in the history of the colony between 1760 and 1775. The most interesting feature of this house is the extensive use of mahogany for its interior finish. The door and window sills, as well as the sash, and all of the paneling and trim on the first floor are of this fine hardwood. All of it has long ago been painted over, the usual ivory tint, except a very beautifully inlaid frieze in the mantel of the drawing room. The writer can recall several other old houses where thick mahogany planks have been used for door sills. In one particular instance, when an old house was demolished, the mahogany sills were salvaged and were used quite successfully for cabinet work, after exposure



Mahogany Drawing Room at 60 Church Street



ROOFS AT 114 AND 116 CHURCH STREET



7 GIBBES STREET: CORNICE, BRACKETS AND EXTENSION ARE LATER ADDITIONS.

to the weather for considerably more than a century.

At 7 Gibbes Street is another small frame house that has managed to keep its station in the world. It was built some time between 1804 and 1811 by an Englishman by the name of John Harf, who ran a shipyard on the river front, adjoining the house. The framing timbers are unusually massive and staunch for such a small building, and are hand hewn, not sawed. The weatherboarding on the front is put on with very close flush joints, more like the side of a ship than the usual lapped way in which most siding is applied to a dwelling. It is therefore not unlikely that this house was built by Harf's shipwrights when they were not working on his clipper ships, and built also according to nautical methods.

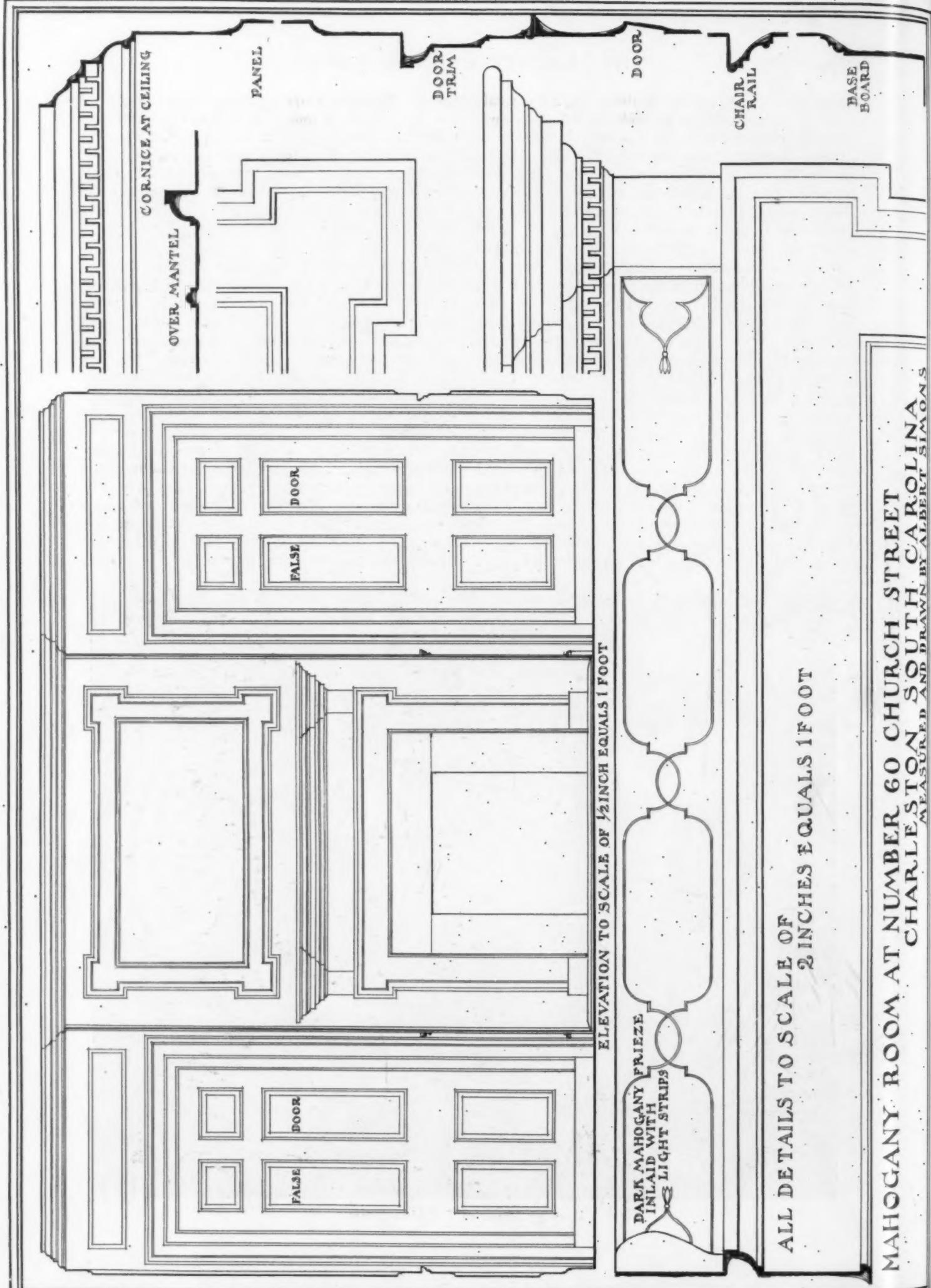
Another house, probably of about the same period, is that at 8 Atlantic Street. It is a rather reticent house, of very thick brick walls covered with stucco. Its severity is relieved by a wooden balcony under the windows of the second story. The use of stucco composed of burnt oyster shell lime and river sand seems to have been resorted to from earliest times, probably to damp-proof the brick walls, to which the interior plastering was applied directly, without furring or lathing. These stucco walls were frequently tinted with cold water wash of very beautiful pastel

shades. After several successive washes of different hues, the walls eventually acquired a vivacity of color, as though they had been decorated with sgraffito work. Sometimes, however, ambitious but ill-advised master painters have attempted to cover these stucco walls with oil paint, which soon curls up and peels off, giving the poor building a most leprous appearance. To the house at 8 Atlantic Street there is a legend attached that it was in this building that Osceola, the famous Seminole chief, was confined for a time before he was imprisoned in Fort Moultrie, and that he not infrequently startled the neighbors by war whoops at unexpected moments. Charleston is full of historic associations.

Across the street at 3 Atlantic Street stands a frame building, erected probably some time after 1830. This house also is very restrained in its simplicity, but its delicacy of scale is well sustained throughout. As in most of these houses, the chimney stacks are large, to admit of great log-burning fireplaces and flues ample enough for the free passage of a sizeable chimney-sweep, as the old city ordinance requiring all chimneys to be swept at frequent intervals was rigidly enforced. In almost all instances these large open fireplaces have been partially filled in order to accommodate the smaller coal-burning



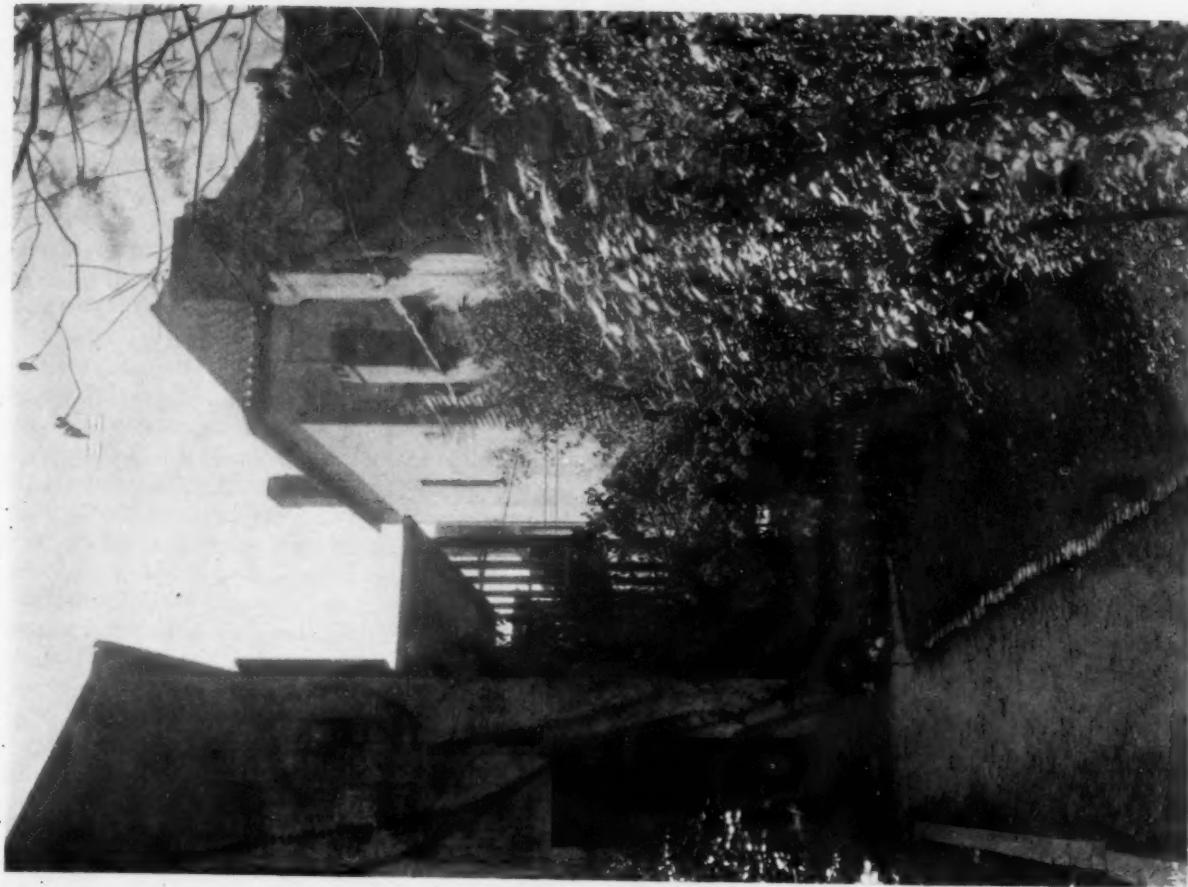
Drawing Room at 7 Gibbes Street



February, 1925

THE ARCHITECTURAL FORUM

85



GARDEN OF HOUSE AT 56 TRADD. STREET



GROUP OF OLD HOUSES IN ST. MICHAEL'S PLACE



House with Gambrel Roof in Chalmers Street

grates, but the great chimney stacks have served as staunch lateral braces for many a house against the fury of West Indian hurricanes.

While the street frontages of these houses are often quite narrow, the lots are often very deep, with a series of additions, kitchen buildings and servants' quarters, receding in a long drawn perspective closed by a garden where fig trees, magnolias, and oleanders checker the walls with light and shade. Seen from the garden these accumulations of buildings are most picturesque, and have a frankness of functional expression that seems to hark back to mediaeval times. Especially is this true of the intersections of roofs and the placing of chimneys and dormers. Most of the roofs have a comparatively steep pitch, a one-half pitch being the most usual. This steep pitch shows adherence, of course, to the building tradition derived from England, the Netherlands, and northern France, whence the early settlers came. Though there is no snow to be considered here, these steep roofs are admirably suited for shedding the torrential rains that visit this coast in summer. It will be noted that the pitch of these roofs becomes perceptibly less steep along the eaves, so that the roof forms a graceful concave curve, or "bell cast," as it meets the top of the wall. The roof tiles are salmon pink with fire-glazed patches of dark purple. In shape they are the same as those com-



Living Room at 3 Atlantic Street

monly seen in England and Holland, and are quite different from the roof tiles of Mediterranean countries. That these tiles were not the earliest of materials used for roofing is evidenced by the fact that several tile roofs still have older shingle roofs underneath. Slate roofs are also quite common, especially if the roof has dormers; these were more successful with slate than with tile. The old slate roofs exhibit slates of many different colors and sizes, records of the passing of many storms. This gives the houses an old world, antiquated character.

The shapes of the roofs show considerable variety, and it is interesting to find, on several of the earlier buildings, that the gambrel or curved roof was used. This type of roof, which has been popularly associated with New England and with "Dutch Colonial" houses, seems to have been of English rather than Dutch origin and was tried out in this colony in early days and soon given up, no doubt because rooms so close under the roof were found to be excessively hot during the greater part of the year. There has been recently quite a vogue for this so-called "Dutch Colonial" type of roof in speculative building, where it has been exploited as something "very snappy" for the home seeker.

Besides the gambrel roof there are several examples of the "jerkin head" roof, in which the peak of the gable is splayed off by a third roof plane. It is



Old Houses on State Street



Dining Room at 3 Atlantic Street

really a compromise between a hipped roof and a gable-end roof. Just what was the purpose of this combination seems rather doubtful; perhaps it was found that the apex of the gable was troublesome to execute and to finish accurately, and that the difficulty could be avoided by bringing the roof down over the upper part, giving the roof outline a snug, blunt appearance.

An interesting detail found on many old houses is the insurance plate or fire-mark. These are oval plaques, about 8 by 10 inches, made of cast iron or lead, bearing the insignia of the company with which the house was insured. The Charleston Museum has investigated this subject quite thoroughly and has an interesting collection of these fire-marks. Some of them are of old English companies, such as the Royal Exchange Assurance Company (founded in 1680) and the London Phoenix Insurance Company (advertised in the "Charleston Directory" for 1809).



House with "Jerkin Head" Roof on Wentworth Street

Besides these there were local companies, such as the Friendly Society (organized in 1736) and the Union Insurance Company (established in 1807). Apart from their historic value in helping to identify the probable date on an old building, these plaques with their quaint devices add a spot of genuine interest to many a blank wall surface which is quite welcome.

In view of the present concerted effort of the architectural profession to rescue our cities from the depressing monotony and sordid repetition of ugly small houses, it is not out of season to invite its attention to the simple honesty and unpretentious charm of these minor buildings, which give a distinct harmony of character to the city which has produced them. Unimportant they are, in both size and finish, but they do preserve a true and intimate relation to the human scale of things, and are perennially gratifying to many whose eyes have grown tired and weary of mere bulk and costliness.



House at 3 Atlantic Street

BUSINESS & FINANCE

C. Stanley Taylor, *Editor*

Forecast of 1925 Building Activity

THE Fourth Annual Survey and Forecast of THE ARCHITECTURAL FORUM has just been completed and tabulated. Individual reports of prospective activity for the year 1925 were obtained from 1562 architects, divided into 19 building types as indicated in the table given here. An analysis of this information with proper weighting indicates that the year 1925 is to be another \$5,000,000,000 year, the actual figures determined by the Survey being \$4,992,318,000.

This Survey was conducted in exactly the same manner as those issued successfully for the past three years, during which period the Forecast of THE ARCHITECTURAL FORUM, presented at the first of each year, has closely approximated the actual totals for the year. In January, 1924 the published forecast of THE FORUM predicted an expenditure of \$5,560,367,700 during that year; figures now available prove that this prediction was correct within 3 per cent. A recent statement by S. W. Straus & Co. says that "the year 1924 has been the largest building year in the history of the country in point of financial requirements. Last year the volume was \$5,500,000,000, but aggregate operations this year exceeded the 1923 total by about 4½ per cent."

A recent statement of the F. W. Dodge Corpora-

tion declares that "1924 was another record-breaking building year. Total contracts awarded during the year in the 36 Eastern states (which include about seven eighths of the total construction volume of the country) amounted to \$4,481,807,000, indicating that the total volume for the entire country was well over \$5,000,000,000."

Thus reports from dependable sources indicate that THE FORUM Forecast for 1924 was correct, and the statement made last January that "there will be a late reaction in the fall of 1924, providing during the year two peaks of building activity totaling more than \$5,000,000,000 for the year," has been changed from a forecast to a fact.

All evidence would seem to bear out the prediction that 1925 is to be another such year. The basic elements which establish the total volume of building in any given year include:

- An established shortage of buildings.
- Public confidence in the building situation.
- Stabilized costs.
- Good transportation conditions.
- Availability of ample mortgage money.
- Good labor conditions.
- Well maintained rentals.
- Sound general business conditions.

BUILDING TYPES	N. EASTERN STATES	N. ATLANTIC STATES	S. EASTERN STATES	S. WESTERN STATES	MIDDLE STATES	WESTERN STATES	U.S.A.
Automotive	\$13,038,000	\$37,896,000	\$3,381,000	\$8,604,000	\$53,691,000	\$25,848,000	\$142,458,000
Banks	6,939,000	79,770,000	6,255,000	13,791,000	46,431,000	16,935,000	170,121,000
Apartments	39,879,000	284,931,000	19,077,000	28,881,000	163,779,000	42,810,000	579,357,000
Apartment Hotels	15,030,000	69,270,000	7,275,000	14,670,000	75,165,000	21,945,000	203,355,000
Clubs, Fraternal, etc.	31,020,000	107,028,000	7,455,000	13,689,000	121,317,000	41,283,000	321,792,000
Community <small>Memorial</small>	7,023,000	24,054,000	765,000	3,765,000	14,454,000	10,971,000	61,032,000
Churches	22,389,000	106,740,000	16,905,000	37,494,000	150,063,000	39,885,000	373,476,000
Dwellings <small>(Under \$25,000)</small>	15,837,000	109,281,000	10,809,000	11,904,000	64,497,000	23,394,000	235,722,000
Dwellings <small>(\$25,000 to \$50,000)</small>	9,302,000	36,636,000	6,594,000	5,622,000	31,086,000	12,699,000	101,940,000
Dwellings <small>(Over \$50,000)</small>	4,710,000	21,717,000	1,620,000	4,635,000	15,036,000	7,812,000	55,530,000
Hotels	33,615,000	95,874,000	31,710,000	19,035,000	160,824,000	52,635,000	393,693,000
Hospitals	13,620,000	88,770,000	4,980,000	17,448,000	61,395,000	42,825,000	229,038,000
Industrial	37,770,000	115,089,000	7,191,000	13,698,000	178,050,000	40,569,000	392,367,000
Office Buildings	39,303,000	222,441,000	12,426,000	36,039,000	103,359,000	75,051,000	488,619,000
Public Buildings	8,103,000	51,981,000	4,911,000	12,666,000	51,510,000	57,930,000	187,101,000
Schools	79,335,000	263,784,000	27,291,000	51,687,000	229,641,000	75,120,000	726,858,000
Stores	15,630,000	45,030,000	4,965,000	6,708,000	41,685,000	23,220,000	137,238,000
Theaters	24,450,000	36,495,000	4,944,000	8,484,000	40,512,000	21,096,000	135,981,000
Welfare <small>Y.M.C.A., etc.</small>	1,353,000	18,417,000	1,305,000	6,171,000	15,096,000	14,298,000	56,640,000
TOTAL VALUE OF NEW BUILDINGS	\$418,347,000	\$1,815,204,000	\$179,859,000	\$314,991,000	\$1,617,591,000	\$646,326,000	\$4,992,318,000

Detailed Forecast of Building Activity for 1925

In regard to the existing building shortage, the survey recently conducted by S. W. Straus & Co. says that "the year 1924 closes with a building shortage of considerable magnitude confronting the industry. In the cities of more than 10,000 population alone, this shortage is in excess of \$4,000,000,000 in value, with a very large apparent shortage in places of less than 10,000 population." Of course in certain districts the building shortage has to a considerable extent been met, but at present building costs the normal expenditure required in this country is approximately \$3,500,000,000, so that even at the \$5,000,000,000 rate it will take several years of more than normal activity to meet the requirements of the shortage which accumulated during the period from 1913 to 1920.

There has occurred no abrupt rise in building costs or trouble in the labor situation to disturb public confidence in building. In fact conditions today are better than they were a year ago, for we have behind us a year remarkably free from labor disturbances and one in which building projects proceeded in a smoother manner than for many years before. Interest in investments in mortgage bonds and individual financing of building projects continues unabated, and there are no signs to indicate anything but a strong element of confidence in the real estate market and throughout the building industry. In certain districts speculative building has been overdone, and it may well be that the volume represented by that field will be less in 1925 than in 1924; but, on the other hand, the volume of institutional and commercial building promises to overbalance this situation.

The handling and shipping of building materials have been greatly facilitated by improved transportation conditions, and this fact coupled with the good production situation makes it possible to obtain deliveries without undue delay, so that the element of waste has been considerably eliminated from the building cost situation. Building material manufacturers are producing and distributing their products today more extensively and more smoothly than ever.

Building finance is in excellent condition, due primarily to the confidence of the public in this field and to the ability of building promoters to pay well for the use of money. Reports from mortgage companies everywhere indicate confidence in the situation and willingness to aid in any legitimate building project. The amount of money directed into building channels through mortgage bond companies is increasing every year, and mortgage bonds have become a standard form of investment in every section of the United States. Secondly, financing has also become easier, and with fairly well stabilized building costs it is probable that building operations can be carried out with an even smaller proportion of equity than at any time during the past few years. Real estate circles report considerable activity in the sale of sites for buildings of all types, including a considerable movement in all the suburban districts.

The labor situation in the building field promises little or no trouble this year. In the various trades the union scales have evidently been worked out in a manner reasonably satisfactory to all parties, and many agreements between labor and employers will probably remain in force at least during the year 1925. As no great disturbance is anticipated in this quarter, this condition becomes an important factor tending toward continued prosperity in the construction industry.

It may also be noted that rentals are evidently being well maintained on present levels, and consequently building projects offer excellent opportunities for investments with a strong speculative factor still in evidence. No great change is anticipated in this condition during 1925, as the demand for various classes of building occupancy is still strong enough for certain districts and building types where past shortage has been overcome, and even here there has been no great reduction in rental income.

Speaking of general business conditions and of the building situation, Secretary Hoover in a recent statement on the economic prospects for the year 1925, says in part: "The construction work of the country has maintained high activity. While the shortage, particularly of housing and business buildings due to the cessation of construction during the war, has been to a large degree overcome, continued high real wages and general prosperity create a demand in excess of that due only to increasing population, because of the insistence of a population accustomed to rising standards of living for more elbow room and better housing generally. One striking factor in maintenance of increased construction activities is the effect which the automobile is producing in increasing the demand for road construction and in causing migration of population in many of our towns to new housing in the suburbs. Another effect of these forces is to maintain rents out of line above the general price levels. With our high real wages and little unemployment, there is no reason to expect any material change in the course of this industry."

"The annual survey of the Department of Commerce shows that the New Year begins with the economic structure of the world upon more solid foundations than at any time since the war. With the exception of a few spots of secondary importance there has been during the past year a real advance toward social, economic, and political stability throughout the world. The only exceptions are Russia and China, which even before the war contributed less than 3½ per cent of international commerce, and of course a part of this continues. Generally the world is producing more goods, there is fuller employment, there are higher standards of living, more assurance of economic stability for the future, and more promise of peace than we have seen for many years. The world is by no means free from liability to economic shock, yet the forces in motion today all tend to great promise for 1925.

Percentage of Public Demand for New Buildings—A Comparison Between the Years 1924 and 1925

The figures shown here are percentages indicated for various building types and geographical localities. The percentages are those from The Architectural Forum Building Forecast for 1924 and for 1925. Each indicates the relative proportion of the total amount of prospective building represented by the specific building type. Percentages for the two years are presented together in each division so that the variation of interest in each type and district may be clearly shown.

Comparative Activity in Various Building Types During 1925

To demonstrate the use of this table we may take for instance the situation of bank building in the Northeastern states for 1925 as compared to 1924. In the chart the figures show that bank building in the forecast for 1924 in the Northeastern states represented 6.9% of total prospective building for that district. In 1925 bank building represents only 1.6% of the total forecast for the district. This comparison indicates that there will be much less bank building in the Northeastern states during 1925 than in 1924. On the other hand, the office building situation in this district evidences twice as much activity in 1925. Similarly, comparisons may be made for the 19 building types in six geographical divisions of the country.

Type of Building	Northeastern States		North Atlantic States		Southeastern States		Southwestern States		Middle States		Western States		United States	
	1924 %	1925 %	1924 %	1925 %	1924 %	1925 %	1924 %	1925 %	1924 %	1925 %	1924 %	1925 %	1924 %	1925 %
AUTOMOTIVE	4.4	3.2	3.1	2.	1.8	2.	2.8	2.4	3.3	1.8	4.	2.6	2.6	2.9
BANKS	6.9	1.6	4.9	4.4	3.2	3.4	1.8	4.4	3.1	2.9	2.	2.6	3.7	3.3
APARTMENTS	8.1	9.5	12.7	15.6	8.2	10.6	6.	9.1	8.	10.1	16.	6.6	9.8	10.2
APARTMENT HOTELS	7.2	3.6	6.3	3.8	2.1	4.1	1.	4.7	8.6	4.6	5.	3.4	5.	4.
CLUB AND FRATERNAL	5.4	7.4	4.4	5.9	6.1	4.1	6.	4.3	6.8	7.5	4.9	6.5	5.6	6.
COMMUNITY AND MEMORIAL	.7	1.7	1.6	1.3	.7	.4	2.2	1.1	.9	.9	2.8	1.6	1.5	1.2
CHURCHES	5.1	5.4	4.8	5.9	6.9	9.4	7.	11.9	4.8	9.2	5.9	6.3	5.8	8.
DWELLINGS (under \$20,000)	4.2	3.8	6.3	6.	3.8	6.	4.2	3.8	2.7	3.9	3.2	3.6	4.1	4.5
DWELLINGS (\$20,000 to \$50,000)	2.7	2.2	3.	2.1	2.4	3.6	2.5	1.7	1.4	1.9	1.2	1.9	2.2	2.2
DWELLINGS (above \$50,000)	2.6	1.1	1.8	1.3	.9	.9	1.9	1.4	.8	.9	1.3	1.2	1.6	1.1
HOTELS	6.1	8.1	9.5	5.4	23.6	17.6	15.9	6.	11.8	10.	11.	8.	13.	9.2
HOSPITALS	3.4	3.3	5.7	4.9	3.4	2.8	6.9	5.6	6.2	3.9	4.6	6.7	5.	4.5
INDUSTRIAL	8.2	9.1	10.1	6.3	4.7	4.	2.8	4.4	7.7	11.	4.7	6.3	6.5	6.9
OFFICE BUILDINGS	4.5	9.4	7.	12.2	7.1	6.9	13.1	11.4	9.2	6.3	13.3	11.6	9.	9.6
PUBLIC BUILDINGS	2.3	1.9	1.3	2.9	2.7	6.4	4.2	2.8	3.2	3.3	8.9	3.1	4.	
SCHOOLS	18.4	18.9	12.9	14.5	19.1	15.2	11.4	16.4	15.4	14.2	12.5	11.6	15.	15.1
STORES	1.8	3.7	2.1	2.5	1.8	2.8	1.3	2.1	3.1	2.7	3.6	2.1	2.9	
THEATERS	7.	5.8	1.8	2.	1.	2.8	6.9	2.7	3.7	2.6	3.4	3.8	3.2	
WELFARE (Y. M. C. A. etc.)	1.	.3	.7	1.	.5	.7	1.7	2.	.6	.9	1.5	2.2	1.	1.2

"Savings continue at a very high rate, as indicated by the increasing savings deposits, the large absorption of bond issues, and the extraordinary expansion in insurance, thus demonstrating that there has been maintained a high state of efficiency throughout industry and commerce, with little evidence of waste, extravagance and speculation. In fact the most far-reaching movement in our economic life today is the larger understanding of its broad problems, the better appreciation of the factors of stability, and the definite progress in the elimination of waste, through more stable employment, through better administrative methods, and through the rapid march of scientific discovery. That we are able to maintain wages at 100 per cent above those of the pre-war period, while the cost of living is 72 per cent and the average wholesale price of commodities about 50 per cent above pre-war values, is the very definite proof of increasing efficiency in production, and distribution and free flow of competitive action."

On another page will be found an interesting comparative tabulation of the relative demands for different types of buildings in various sections of the country. These are expressed in percentages of the total demand, and in order that comparisons may be made easily, the percentages from the 1924 Forecast are given beside the percentage for the 1925

Forecast. An examination of these various comparative percentages of demand indicates some interesting comparisons in various building types. Of new construction in 1925, the various building types evidently will show these changes in ratio of public interest as compared with 1924.

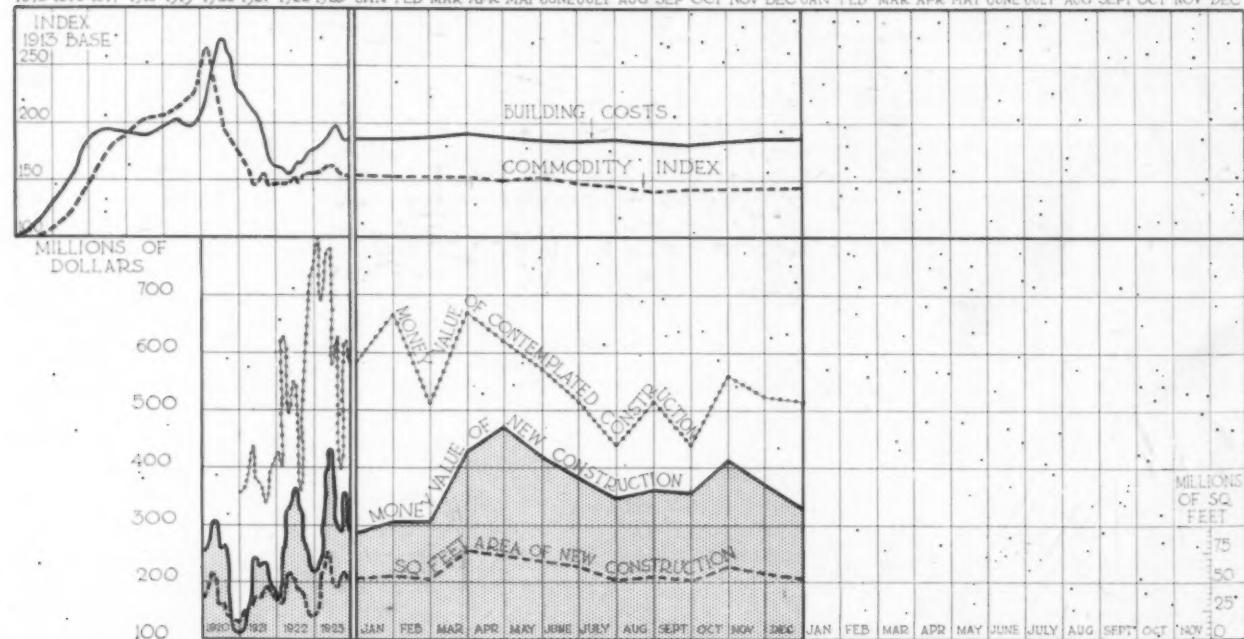
Type of Building	Comparative Activity
Banks.	Slightly less.
Apartments.	Slightly greater.
Apartment hotels.	About 20 per cent less.
Clubs and fraternal.	Slightly greater.
Community and memorial.	Slightly less.
Churches.	Considerably greater.
Small dwellings.	Slightly greater.
Medium-sized dwellings.	The same.
Large dwellings.	Slightly less.
Hotels.	About 25 per cent less.
Hospitals.	Slightly less.
Industrial buildings.	Slightly greater.
Office buildings.	Slightly greater.
Public buildings.	About 20 per cent greater.
School buildings.	The same.
Retail stores.	About 25 per cent greater.
Theaters.	Slightly less.
Welfare buildings.	Slightly greater.

The Building Situation

A Monthly Review of Costs and Conditions

ANNUAL CHANGES

1915 1916 1917 1918 1919 1920 1921 1922 1923 JAN FEB MAR APR MAY JUNE JULY AUG SEP OCT NOV DEC



THESE various important factors of change in the building situation are recorded in the chart given here: (1) *Building Costs*. This includes the cost of labor and materials; the index point is a composite of all available reports in basic materials and labor costs under national averages. (2) *Commodity Index*. Index figure determined by the United States Department of Labor. (3) *Money Value of Contemplated Construction*. Value of building for which plans have been filed based on reports of the United States Chamber of Commerce, F. W. Dodge Corp., and *Engineering News-Record*. (4) *Money Value of New Construction*. Total valuation of all contracts actually let. The dollar scale is at the right of the chart in millions. (5) *Square Foot Area of New Construction*. The measured volume of new buildings. The square foot measure is at the left of the chart. The variation of distances between the value and volume lines represents a square foot cost which is determined first, by the trend of building costs, and second, by the quality of construction.

ENGINEERING DEPARTMENT

Illuminating the Exteriors of Buildings

By BASSETT JONES

AN interesting story is told of a famous English architect who recently visited this country and considered the Bush Terminal Building at night one of the most impressive sights he had ever seen. In describing the night illumination of this building, he said that the illuminated portion of the building seemed to be constructed with semi-transparent exterior walls of an alabaster-like material, through which powerful light from within glowed with incandescent beauty. The fact is that this entire effect is obtained by carefully studied exterior flood lighting, and the natural mistake of this architect in assuming that the soft glow was due to the use of semi-transparent walls is a tribute to the interesting possibilities of night illumination in bringing out weird and beautiful architectural effects in such structures.

The subject of night illumination has a definite historical background in France, where even as early as the period of the later Louis building exteriors were illuminated at night with tallow candles, oil wicks and rush torches enclosed in glass globes or chimneys. The purpose of such illumination was primarily to create impressive settings for the great fetes of those periods. Similar effects are to be seen in France today as represented by the outline gas lighting in Paris, such as that used on the dome of the Invalides. Here the dome is completely covered by a large number of gas jets which, when lighted at night, flame and flicker in a most remarkable manner. The wind or even a vagrant breeze constantly extinguishes varying groups of these lights, which



Publishers Photo Service

Bush Terminal Building, New York
Helmle & Corbett, Architects

relight again one from the other, causing patches of light and darkness to sweep in irregular fashion and at irregular intervals over the lighted exterior of the building. The effect is weird and beautiful, and the ever-changing illumination, with a shifting background of smoke and clouds or the clear sky, provides a sight never to be forgotten.

Night illumination has for many years been carried out primarily as an important factor in planning expositions and other large groups of buildings, but within the past few years considerable interest has been expressed in the night illumination of monumental structures. The planning for such illumination is not to give a daylight effect, since it is impossible for artificial illumination to compete with daylight. The fact that a structure had been designed in relation to daytime lighting

would cause the defeat of its architectural purposes were artificial lighting used in an attempt to obtain a similar architectural effect at night. Again, it is obvious that the building is often designed as part of its surroundings, and an attempt to obtain the daylight effect by artificial lighting would throw the building out of its environment and destroy its scale.

Obviously then, night illumination should properly be considered as an individual study, with no effort made to obtain the daytime architectural effect, but with full consideration given to the effects obtainable through the use of sweeping floods of white and colored light, blended softly or focused strongly to obtain the desired effects, which may be beautiful indeed.

No two buildings can be treated alike. Each is an



Photo, Peyster & Patzig, Inc.

AMERICAN RADIATOR COMPANY BUILDING, NEW YORK
RAYMOND M. HOOD, ARCHITECT

individual problem, and the solution which would provide excellent night illumination for one building would be found totally inappropriate for another. Just as in the development of stage lighting each set or each scene calls for its logical lighting effects, so a building cannot be treated merely by flinging light at it; the lighting effects must be worked out from the inside and outside to meet the specific requirements of what might be termed "illumination design."

There are, of course, many methods and various combinations employed to obtain the desired effects of night illumination. I may mention that one of the most effective night lighting schemes which I have seen was that used for the Metropolitan Tower during the Hudson-Fulton celebration in New York. The method employed was simple and ingenious. Every window in the structure was lighted by the installation of a reflector within each window head, throwing a light between the window and the fabric window shade. This light illuminated the *outside* of each shade, all of which were pulled down. The result of this method of night illumination provided for this building a scale of magnitude even greater than it possesses in the daytime. The sense of dignity was enhanced as the greater mass of the structure, black in contrast to the purplish night sky, stood out in sharp silhouette, spangled with thousands of golden rectangles. The softened effect of lighting the windows in this manner was much more interesting than the sharp, bright light spots which would have resulted if the shades were left up and the lights turned on in each room.

It seems quite natural to think of buildings at night as lighted from within, and this fundamental reaction may well serve as the basis for the night illumination of large structures. It lends itself to interesting treatment and provides much opportunity for the exercise of the imagination. This, lighting the building from within, seems to me the only proper basis for the design of its night illumination. It may be treated in many ways,—quiet and dignified, elaborated, or even accented to a surprising and spectacular extreme,—but it must never be altogether discarded. It may be modulated by illuminating the principal lines or masses of the exterior, or merely by substituting lines of light for structural lines, so as to pull the whole together and develop a definite and appropriate composition. But, however it be done, it is the building itself that should give forth light.

There are several interesting examples of night display for large buildings as illustrated in this article. One of these is the night illumination of the new building of the American Radiator Company at 40 West 40th Street, New York, designed by Raymond M. Hood. This building presents an un-



The Tribune Tower, Chicago
John M. Howells and Raymond M. Hood, Associated Architects

usually interesting problem of night lighting because its exterior walls are of black brick with extensive trimming in color. The buttresses, pinnacles and the tank upon the roof are decorated with bright colored areas of tile,—in all an unusual combination of exterior materials.

From the viewpoint of night illumination, the black surfaces of this building are particularly attractive, because if colored light is used the resulting hues are dark and rich. The effect of this building when lighted at night is almost that of pouring over the structure a great volume of spectral-hued incandescent material which streams down the perpendicular surfaces, cooling as it falls and collecting like molten lava in every recess and behind every parapet. Thus the great shaft stands black below, with the colored, wavering incandescence blending from the black to comparatively brightly lighted areas at

the top of the building, while here and there are accidental golden areas of windows opening into lighted interiors. All this effect is built up on a base of light provided by the brilliant show windows and entrances on the street level. The lighting plan developed to obtain this effect includes at every setback and behind every parapet floodlights with rose, scarlet, amber and blue screens. Here and there the flame-like coronae of powerful projectors paint the walls and buttresses above, while each hidden recess glows like fire above and fades below. The intensity of colors is lessened, and the combined hues become lighter as the eye nears the top of the building, where clear floods of light bring out the color in exterior decorative surfaces.

Another interesting project of night lighting is that involved in the plan developed for the *Tribune* Tower in Chicago, which is again peculiarly adapted for night illumination. Just across Michigan Boulevard stands the sheer, white, flood-lighted shaft of the Wrigley Building, but the plan for the *Tribune* Tower is to produce a fine composition in light and color, based upon the architectural design. I think of this great tower as standing in a pool of rose colored light, from which it rises like a wonderful fountain—a marvel of Gothic tracery, of light against the sky. The walls to the fifth floor are plain masses of stone, pierced by a great entrance which is backed by a pierced stone curtain, almost like the reredos over an altar. The windows at the fifth floor level are hooded niches. In each hood a 250-watt flood, one for each window, will throw a spreading beam of rose colored light upon the side walls. Through this light will be seen the golden show windows and the super-brilliantly lighted entrance. Below the fifth floor, at the second floor level, will be eight bracketed 1800-watt incandescent searchlights, facing upwards, the white beams of light being directed vertically along the eight main shafts of the structure. Above this, except for the luminous vertical shafts, nothing other than the accidental window lighting is seen until the 25th floor is reached, and here there are 16 arches, each picked out by a 600-watt strip built into the window sill. Above this is an attic floor, with opal glazed windows in stone tracery lighted from within; then comes the first roof, surrounded by a tall parapet of stone tracery. This tracery will be picked out by 500-watt flood lights on the roof, thus lighting the parapet from behind. Then, from this parapet rise eight shafts connected with the central tower by flying buttresses. On the roof behind the parapet will be placed a number of 1000-watt floods, filling the space with a pool of rose colored light, which will pick out shafts, buttresses and tower, dying away upwards.

This central tower is octagonal in plan, and its six floors have windows on each face. Each vertical row of windows terminates in an arch so that, in effect, each such row constitutes a single tall window, crossed and divided vertically by stone mullions. Behind each window on each floor a roller curtain

will be installed. The curtains will be painted on the outside faces in bright metallic colors and lighted by vertical strips worked into the window trim. When seen from a distance at night, it is anticipated that these windows will have the appearance of tall, arched cathedral windows filled with stained glass and lighted from within. Above this are the tower roof and the tank screened with stone, topping all. This tank will be illuminated by floods set behind the pinnacles, giving just enough light to prevent the structure from fading out of the picture. A tall flag pole rises from the tank. A banner flying from this pole at night will be brilliantly illuminated by projectors set on the tank roof. A circle of eight 500-watt incandescent searchlights, mounted horizontally on a ring fitting the flag pole and hoisted to the top by rigging inside the pole, will serve as a permanent beacon. This completes the equipment for ordinary use.

For display occasions it has been suggested that 10-boiler horsepower in steam be carried to the top of each of the eight main and eight secondary pinnacles, this steam to be discharged through nozzles designed to prevent any appearance of steam jets. Back of the parapet at the 27th floor level, on the roof between the buttresses, connections have been provided for eight 30-inch, 150-ampere automatic Navy type projectors with motor-operated iris shutters and beam diffusers. With diffused beams and exterior color filters attached, these projectors might be used to illuminate the steam from the pinnacles. The whole effect would be that of Valhalla burning in the skies, bringing to mind, possibly, the finale of *Gotterdammerung*. With manual control smoke boxes added, the mortars firing bombs from the tank roof, a most gorgeous display can be produced. On election nights, with the searchlight beams laid down on the eight cardinal points, and with the iris shutters simultaneously controlled from a point inside the building, a visible signalling arrangement of great carrying power will result. The beams alone will be visible for many miles against the sky, and if the nights be clear code messages can be flashed even across the lake to Michigan.

The possibilities of night illumination are almost limitless because of the great variation obtainable through colors and light intensities, and because of the possibilities in the combination of exterior and interior lighting. In this connection one remembers with interest the amazing lighting effects obtained at the Panama Pacific Exposition held at San Francisco, where some unusually fine work was done in the lighting of buildings. Here many of the individual structures were lighted in such a manner that their architectural effects were enhanced and glorified in amazing beauty.

From the architect's viewpoint, this subject offers an extremely interesting study. The practical value of night illumination is of course chiefly measured in terms of advertising and institutional prestige, adding to the fame of deservedly renowned buildings.

The Forum Studies of European Precedents

The Palace of Fontainebleau



Center Pavilion of the Left Wing
Built by Francis I

ALTHOUGH tradition attributes the building of Fontainebleau to King Robert in the tenth century, it is definitely known to have existed as early as 1137, because several charters granted by Louis VII were there drawn up. Most of the present palace dates back to the time of Francis I, who during his reign from 1515 to 1547 replaced the old castle with many of the buildings we see today. Desiring to make it his favorite residence, he brought from Italy architects and artists who demolished the old buildings of the *Cour Ovale* and built the *Pavilion de Port Doree*, the ballroom wing, the *Chapel de St. Saturnin*, the Trinity Chapel, the *Galerie de Francois I*, the *Galerie de Ulysse*, and the buildings that surround the *Cour du Cheval Blanc*.

Under Henry IV, who reigned from 1589 to 1610, further extensive additions were made to Fontainebleau. He erected buildings in the *Cour des Offices* and the Princes' Court, and two pavilions that terminated in the *Cour Ovale*, the garden and pond pavilion, the *Galerie des Cerfs*, the *Galerie de Diane*, the *Galerie des Chevreuils*, and the Orangery. He also completed the decorations of the Trinity Chapel and the drawing room of the *Belle Chiminee*. Further additions and alterations were carried out by Louis XIII, who commissioned Lemercier in 1612 to construct the Horse Shoe Staircase. Many galleries and apartments were demolished or redecorated by the three famous Louis who followed, but the greatest period in the history of Fontainebleau came with the First Empire. As it had been deserted since the end of the reign of Louis XVI and throughout the Revolution, Napoleon found it in a state bordering on ruin, and set to work restoring and refurnishing wherever necessary. Today the palace is almost as he left it, a magnificent monument to the architects, artists and artisans of the great years of the French Renaissance.

Architectural
Library



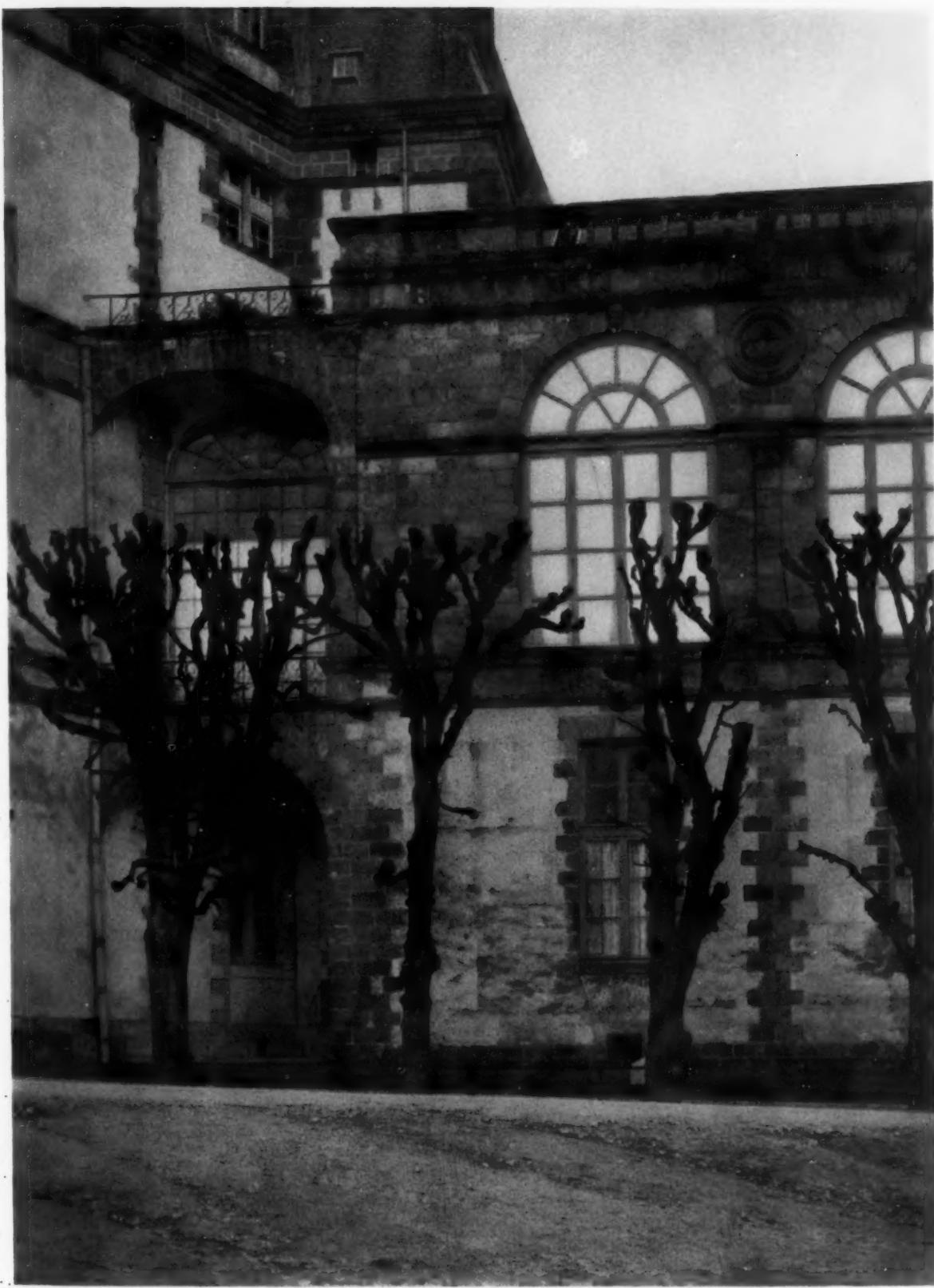
© The Architectural Forum

Photos. Paul J. Weber

FONTAINEBLEAU; ONE OF THE CORNER PAVILIONS BUILT BY HENRY IV

The Forum Studies of European Precedents; Plate 26

Architectural
Library



© The Architectural Forum

FONTAINEBLEAU; DETAIL OF TRINITY CHAPEL BUILT BY FRANCIS I

The Forum Studies of European Precedents; Plate 27

Architectural
Library

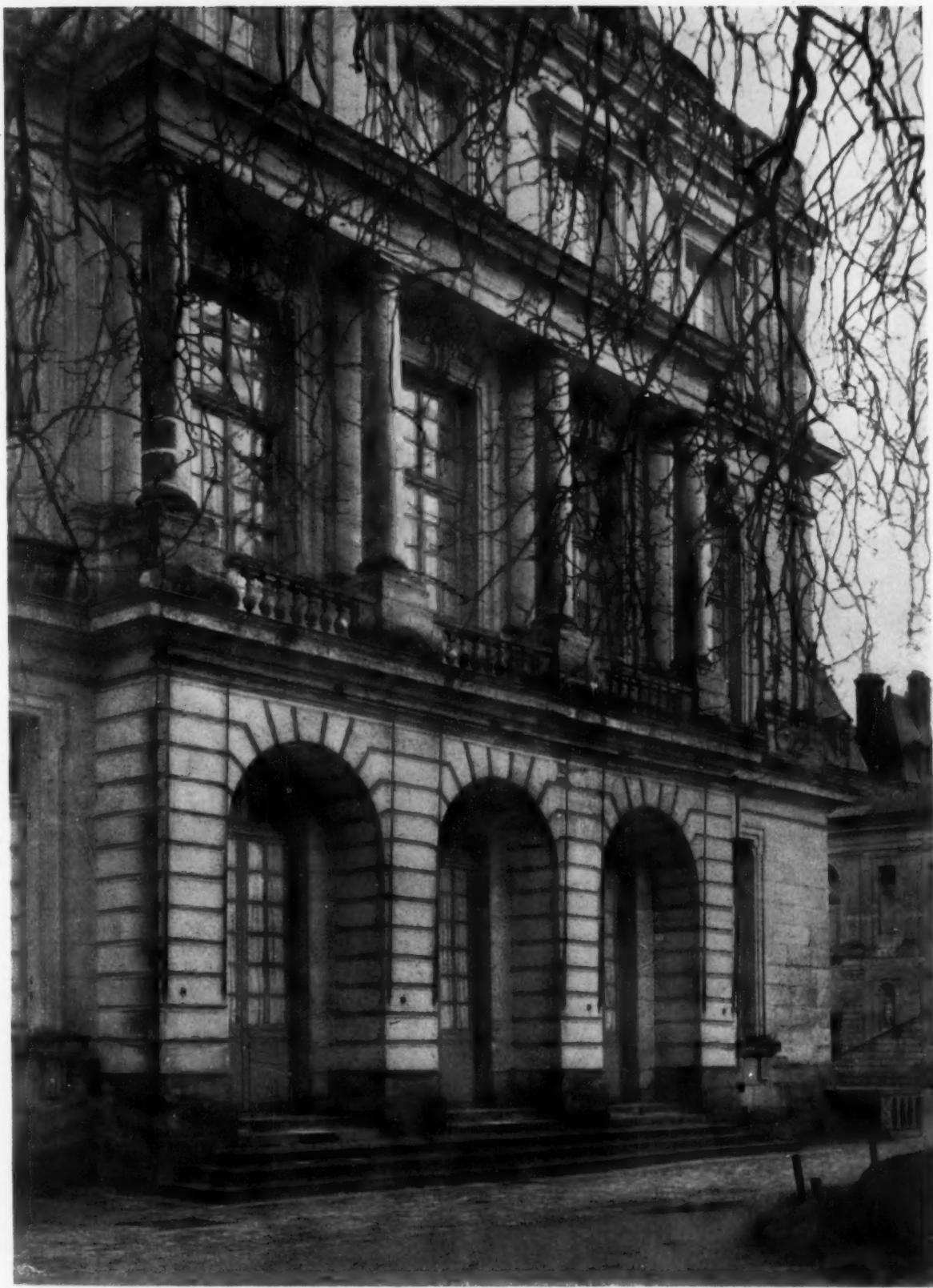


© The Architectural Forum

FONTAINEBLEAU: CORNER PAVILION FROM THE ALLEY BETWEEN PALACE AND STABLES

The Forum Studies of European Precedents; Plate 28

Architectural
Library

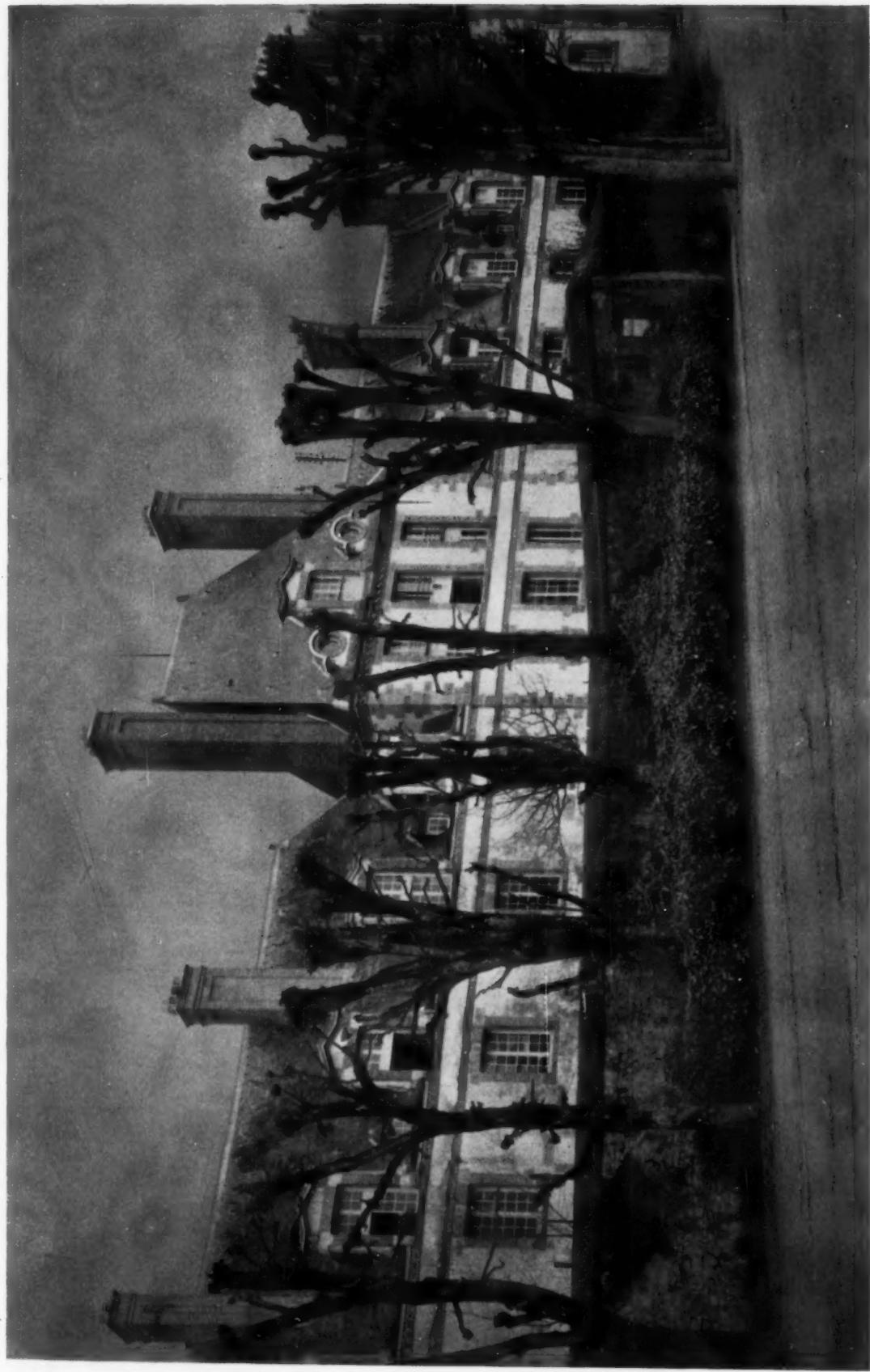


© The Architectural Forum

FONTAINEBLEAU; DETAIL OF HENRY IV PAVILION FACING THE CARP POND

The Forum Studies of European Precedents; Plate 29

Architectural
Library

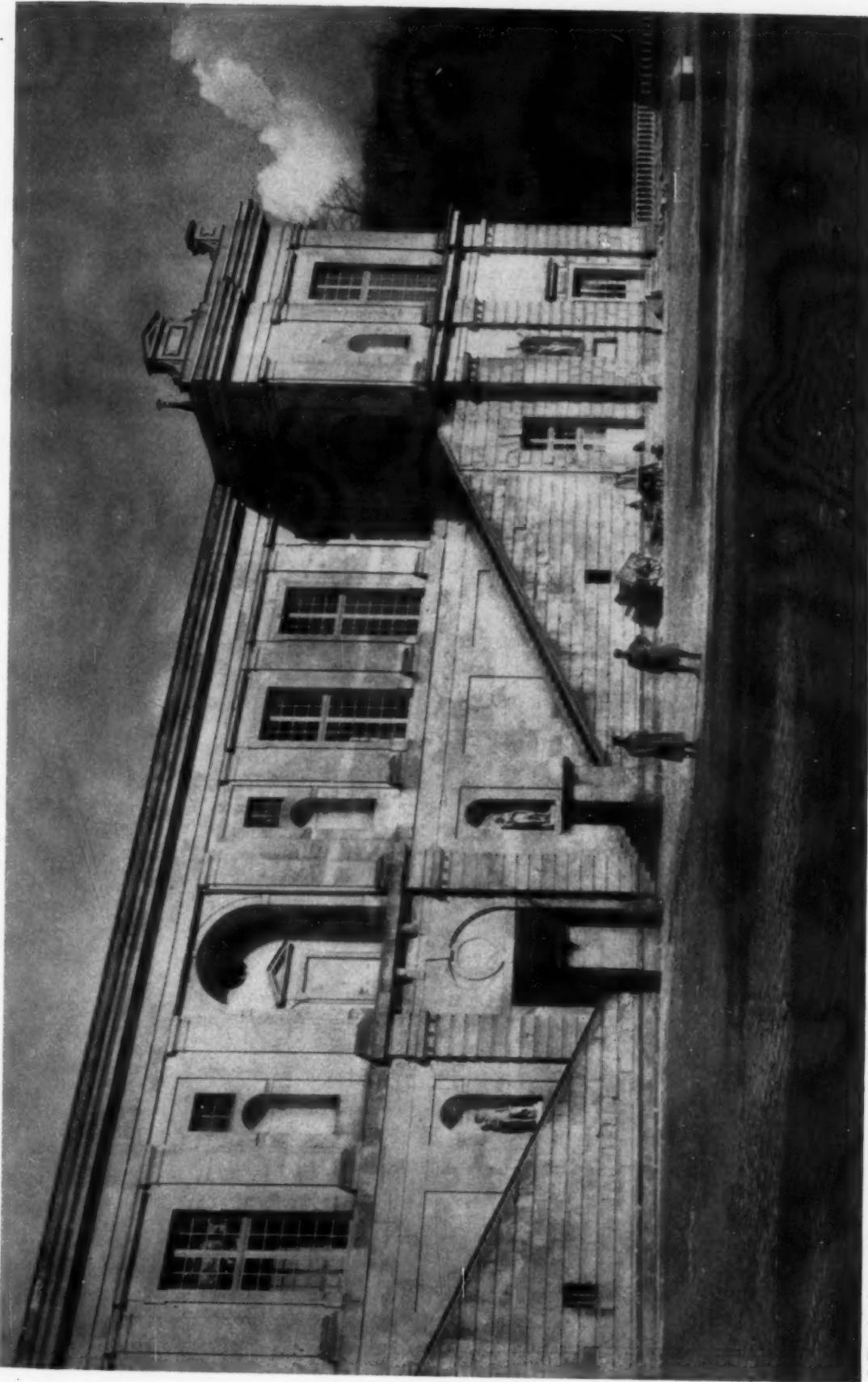


© The Architectural Forum

FONTAINEBLEAU; FAÇADE OF THE STABLES FROM THE HIGHWAY

The Forum Studies of European Presidents: Plate 30

Architectural
Library

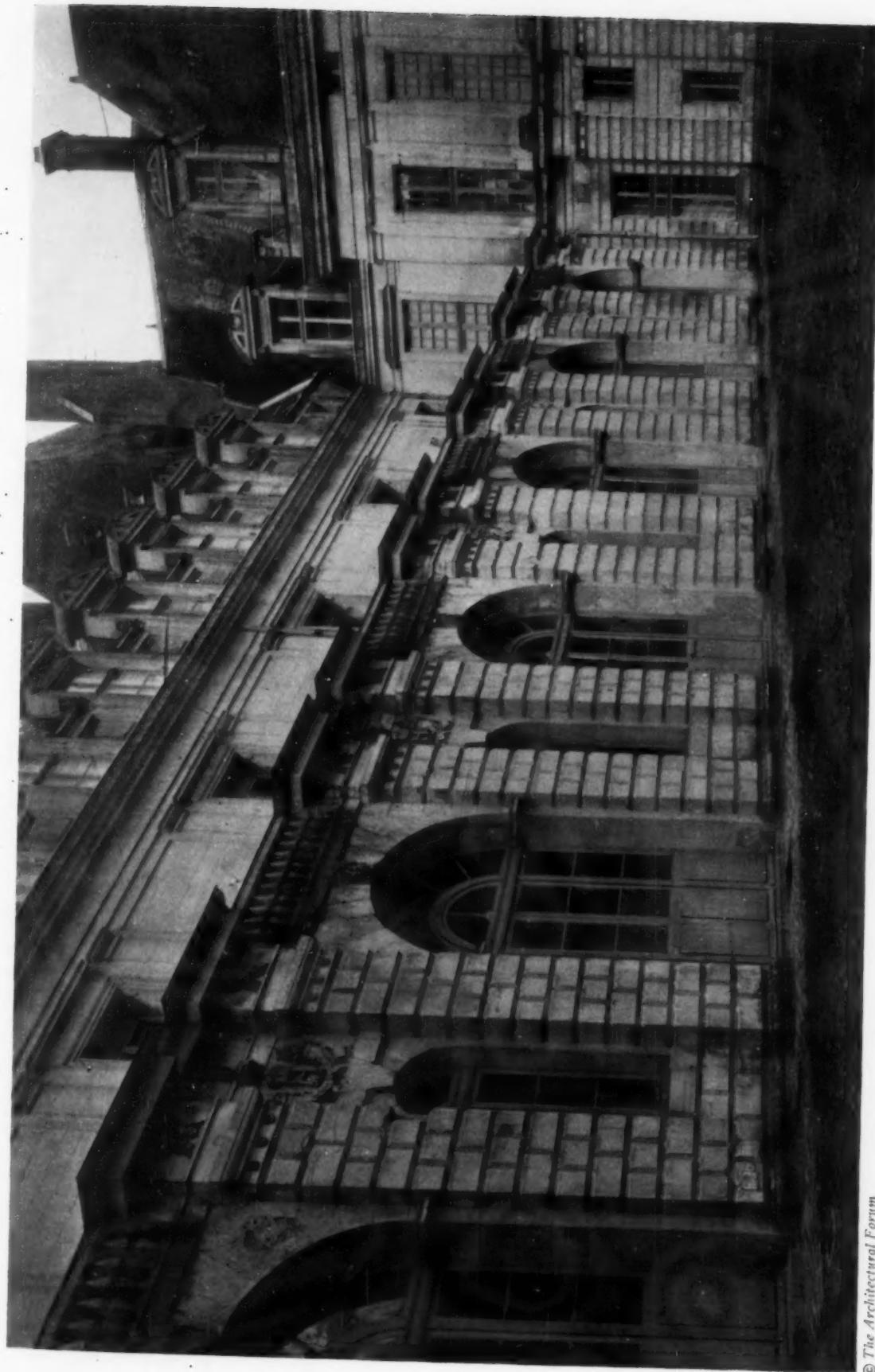


© The Architectural Forum

FONTAINEBLEAU; EXTERIOR STAIRCASE FACING THE COURT OF FOUNTAINS BUILT BY HENRY IV

The Forum Studies of European Precedents; Plate 31

Architectural
Library



© The Architectural Forum

FONTAINEBLEAU; THE HENRY IV ORANGERY IN THE COURT OF FOUNTAINS

The Forum Studies of European Precedents, Plate 32

Architectural
Library

SMALL BUILDINGS

The Architecture of the Small Shop

PART I. DESIGN DERIVED FROM PERIOD PRECEDENT

Editor's Note—"The Modern Arcade Development in Small Store Design," Part II of "The Architecture of the Small Shop," will appear in the August, 1925 issue of THE ARCHITECTURAL FORUM as an exhaustive treatise on the development of increased display space through the use of recessed windows in metal and plate glass. Modern influence on the architectural treatment of the fronts of such buildings, will be indicated.

THE well known Baltimore architect, Este Fisher, of the firm of Parker, Thomas & Rice, has among his friends a dealer in antiques whose shop has been for many years in one of the charming old houses of the period of the Greek Revival which give to Baltimore much of its particular charm. One day when he was in the shop, the dealer said to him: "The next time you come in, Mr. Fisher, you will find things much improved. I am arranging to put in a new store front." The architect asked to see the drawings, and found to his regret that the dealer had secured a price on a very ordinary stock type of window front which would cover the entire face of the building, completely destroying the dignity of the old period design. In selecting this new store front, no effort had been made to preserve the original beauty of the building nor to establish any reasonable scale or attractiveness. The design was such as would have detracted from the atmosphere of this type of establishment and to have so commercialized the business that probably the new store front would have defeated its very purpose. Inspired by his desire to save what he could of old Baltimore, the architect suggested that he would develop a front in keeping with the architecture of the building, and to this suggestion the dealer somewhat grudgingly assented, provided that



A Shop Building in Dutch Style, South Orange, N. J.
Joy Wheeler Dow, Architect

the glass area should not be decreased nor the cost be more than called for in the contract for the proposed remodeling. This result was accomplished, and at the same time an excellent architectural effect attained.

In a similar manner Aymar Embury, II was invited to design a little bicycle shop at Englewood, New Jersey, and was able to secure bids which, including the architect's fee, came slightly under the price set by a local contractor for an ordinary front devoid of attractiveness either in the window layout or in the structural design.

It is very often the case that the architect is thus handicapped by the owner when considering the design of store fronts, because the owner is often so devoid of imagination that he cannot appreciate until he has it the commercial

worth of architectural beauty and the definite sales value of the store front which exerts a subconscious buying appeal. This condition is undoubtedly more general in rural and small city districts than it is in large cities, where commercial competition is so keen that the element of attractive store front design has definitely proved its practical value. In the country districts and throughout small towns and cities there are few stimulating examples of proper store front design brought to the attention of the owner, and his competition is usually not so keen. Then, too, he works on a smaller margin of profit and with a smaller turnover, so that he has less chance for business expansion. The fact is that with sound merchandising principles any store keeper has a better opportunity to develop his business if he establishes an inviting front and attractive sur-



Sketch of Proposed Group of Shop Buildings at Southern Pines, N. C.
Aymar Embury, II, Architect

roundings to increase the interest of the purchaser.

The owner's usual attitude is that he cannot afford an expensive plan, because this will mean stimulating the business of a competitor who is in a cheaper building. On the other hand, it is often the case that with the same cost of materials and labor, but with some element of architectural design, a smart building may be developed which has a tendency to attract a more profitable class of trade and invite the casual buyer who might otherwise pass by. It is quite obvious that the architect who discusses this subject with the retail shop keeper must not only establish in his mind the commercial value of good

design, but must consider price as well as quality, and try to establish a satisfactory basis of acceptance on the part of the owner to justify his acquiescence.

There are today in cities, suburbs and rural districts far too many shops which have been designed by architects without sufficient study to lend the quality which in itself is an argument for securing architectural service. When the country shop keeper can look up Main Street and point to a durable, well-constructed and not unsightly building designed by some local contractor, and contrast it with a shabbily pretentious affair of ornate design built from the plans of an architect, it is difficult to convince him that architectural service is worth while. So if, as is true in many districts, architects are not called upon to design store fronts as often as they should be; it is probable that the fault lies primarily with the architectural profession, and particularly with those members of the profession who have done these so-called "simple" jobs in a careless and uninterested manner. This fact was brought home strongly when searching for suitable material for this issue of THE ARCHITECTURAL FORUM.

Aside from economic considerations the problem is difficult. The tendency of the architect is always to indicate his supporting members in elevation, while that of the owner is to insist on a purely commercial front. Nor is it



A Shop Front in Baltimore
Este Fisher, Architect



Shop Building at Knoxville, Tenn.
Aymar Embury, II, Architect

safe to assume that the tradesman is wrong; the show window must be a more important element in the success of a building than most of us realize, if we stop to think that there are practically no merchants on the street level and few on the story above the street who are willing to dispense with it. Tiffany gets along without a name plate but not without large windows; and when Cartier, who above all others caters to an exclusive clientele, transformed a splendid house on Fifth Avenue into a shop, part of the alteration included the enlarging and transforming of the windows in the first story into show windows. Use of the show window is a tradition dating back to the time when the entire front of the mediaeval shop, even in the raw English climate, was open to the street, and our modern shop keeper likes to simulate the effect of openness by the installation of immense show windows.

In the development of mediaeval shop fronts, a structural requirement was responsible for an excellent though accidental architectural effect. At that time no way was known of minimizing the size of the first story piers beyond the point where they would actually support the upper stories. Thus there was always an apparent as well as an actual stability of construction. Today we are able to set back our columns, corbel out the upper story to the property line and set immense

sheets of glass flush with the masonry above and across the entire front, broken only by small steel mullions, so that the upper stories, be they one or many, appear to be supported on the edges of sheets of glass, creating of course a disagreeable effect.

We can also employ the recessed or arcaded treatment, which is more attractive and offers a method of greatly increasing the amount of show window space. Withal, it may be said that the most consistent architectural effects are probably obtained through following the precedent of past ages, but in these modern days we have, too, become reconciled to this apparent anachronism because of a growing



Shop Building at Forest Hills, L. I.
William S. Worrall, Jr., Architect



Detail from "Tudor Shops," Pasadena.
Kenneth A. Gordon, Architect

knowledge of the properties of metal construction. From the architect's viewpoint, however, the store fronts based on period precedent, or cleverly planned under the recessing system, offer the most interesting opportunities for displaying good taste in design. Consequently, this subject is treated in both its aspects in this issue and is to be discussed again in the article to appear in the August issue of THE FORUM. For this article most of the shops chosen for illustration are based on period design and show use of supports adequate in appearance to support of the structures above. The special problem of glass and metal windows will be treated as Part II, in the issue of August, 1925.

This show window problem is the most difficult which confronts the modern architect, not only because of the required glass areas, but because the upper stories have almost always a far smaller proportion of glass, and also because under modern conditions the show window is not used for window-purposes at all. Many, if not most, show windows are display cases pure and simple, with glass on the fronts and with solid backs. Since the average small shop is about 20 feet wide and 60 feet deep, with natural light possible at the ends only, artificial light is necessary for the major part of the shop in any case, and the confused lighting arising from the



Small Shop in Birmingham, Ala.
D. O. Whilldin, Architect

mixture of natural and artificial light is not only annoying to the customer but militates against proper display of the goods. The shop keeper therefore turns to electric light as his sole illuminant, and cuts off his street light by a solid back to his show window. This results in the establishment of an apparent inner plane of support, so that the upper part may appear to be corbeled out to the depth of the show window. But as the plane of the window glass is also established as the plane of support to the wall above, an inevitable confusion of ideas and inconsistency in structural appearance follows.

We have successful buildings for other purposes in which the glass areas in the first stories are about equivalent to that of a show window, but in these cases use of skeleton construction is clearly indicated in the stories above. The modern factory of either reinforced concrete or of steel enclosed in masonry affords a typical illustration, and while many of our factories are not beautiful pieces of design, enough are really satisfactory to prove that there is nothing inherently wrong in their requirements from the point of view of architectural fitness. In the shop, however, and especially in the country shop, where the upper stories are occupied as apartments, the walls and windows are necessarily adapted to living conditions, and there is not only



New Shops Under Old Houses, Baltimore
Este Fisher, Architect



Shop Building at Pinehurst, N. C.
Aymar Embury, II, Architect

change in the system of support, but usually a change in scale as well. Every architect knows that there is nothing harder to overcome than a forced change in scale, although even this does not present an insuperable obstacle to good architecture, as witness the Bowery Savings Bank on 42nd Street, in New York, where the architects changed suddenly but without offense from a banking room height on the ground floor of 40 or 50 feet, to a ceiling height of 10 or 11 feet in the offices of the upper stories. Nevertheless, when it is taken into consideration how difficult it is to manage successfully any change in scale, especially in a two-story building, and how difficult it is to obtain adequate supporting members on the first story, it can be seen that the designers of the small buildings illustrated in this issue of *THE FORUM* have done comparatively better than the absolute value of their work would indicate. Where they have been permitted to break up the show windows into small panes by means of muntins of either wood or lead, the result has been very satisfactory from the standpoint of appearance. It would seem that there is a growing tendency to permit some division of the show window, especially in shops which pretend to smartness, such as millinery, book, antique, tea shops and the like. This breaking up is done successfully on the vertical plane by the use of small panes, or on the horizontal plane by planning arcaded fronts of glass and metal as will be described in a later issue. There seems to be no advantage in the unbroken shop window for some other sorts of business. A large show window probably helps the sales of the butcher or the grocer very little, if at all, while on the other hand the dressmaker and the toyshop must be greatly helped by large window displays.

Another and most disturbing element in the design of the small shop is the sign board. It is useless to spend money on a beautifully ornamented frieze and cornice if they are to be covered by enormous sign boards displaying the name of the shop owner. Although the actual value of the sign board is probably very small, it is next to impossible to convince the shop keeper of this. As the use of distinctive emblems is far more serviceable, it is, to be regretted

that use of this type of sign is on the decline rather than on the increase. The sole survivals are the barber's pole, the druggist's illuminated jars, the three gold balls of the pawnbroker, and the wooden Indian of the cigar store, which last has almost disappeared. In some of the buildings illustrated the architects have made an attempt to leave a space where signs can be affixed without needless unsightliness, and in one or two cases sign boards were furnished by the owner and the use of other signs forbidden. But in most instances the spaces have been ignored, and the signs so badly painted that the effort appears to have been practically wasted.

The small shop, then, whether in the city or the country, appears to offer one of the most difficult problems that an architect can face. In the first place such shops rarely cost enough to make it possible for the architect to look for remuneration anywhere near commensurate with the amount of time spent on their design; in the second, the owners seldom desire well designed buildings; in the third, the problem presents great technical difficulties; and last, if all these difficulties are overcome, the occupant of the shop usually spoils the building after completion by garish painting or atrocious signs. The United Cigar Stores Company, the F. W. Woolworth

Company, and the Atlantic & Pacific Tea Company all paint their stores vivid and uniform colors, regardless of the architecture of the buildings which they occupy. This example, set by these highly successful companies, has been widely and disastrously imitated to the further detriment of our shops. We cannot at present see that shop design in itself offers much to encourage the lover of architecture. It is certainly lagging behind the other types of architectural design today and must be lifted by the improved taste of a public which needs to be educated.

The architect's interest in the design of small stores is therefore twofold: First, in the possibility of this field for a more extensive use of architectural service. Second, in encouraging better design of shop fronts for the sake of the general influence which may thus be wielded toward greater public appreciation of good architecture from the aesthetic as well as from the practical point of view.



Small Shop at Englewood, N. J.
Aymar Embury, II, Architect

Small Shop Display Windows

NEVER does an architect have two problems to solve which are alike in every detail. In no type of work is this more true than in the designing of shop windows, whether for city centers or country commons. He may have to design shop fronts side by side, one for the sale of trunks and luggage and the other for the merchandising of silverware and jewelry. One shop has to have a low, large show window, in which there will be sufficient space for the display of trunks and handbags or household furniture perhaps, and the other a small, high display window where close examination of the silverware and jewelry for sale may easily be obtainable. Thus from the very nature of the goods offered for sale does scale count in the designing of a shop window.

Nothing adds greater architectural distinction to a small shop window than the use of many panes instead of a single sheet of glass, or else breaking up the straight window plane by proper recessing. This article discusses only the first method, based on early precedent. In the August, 1925 issue of *THE FORUM* the highly important problem of the glass and metal window will be covered.

The muntins required to hold the small panes of glass in place give not only an appearance of security to the show window but also a structural strength of great value to a successful architectural design.

Of course the origin of the small-paned window dates back to the early days, when glass in large sheets was not obtainable. In shops of England and France built during the seventeenth and eighteenth centuries and the first half of the nineteenth it was necessary to use small panes to enclose their show windows. In this case necessity was the mother, not of invention, but of good architectural design. In these later days, so completely accustomed have shop keepers become to the use of a single sheet of glass for the protection of their window displays, that it is very difficult to persuade them, not only as to the practicability of using small panes with strong muntins, but even as to the interesting artistic effect derived from their use. When small panes are used it is highly desirable that they should be carefully scaled to the size of the opening, as may be seen in the illustration of the excellent shop in Boston included here. Only in a few of the cities and towns located on the Atlantic coast are good examples of early shop fronts to be found. Even these are few and far between, and in many cases they have been spoiled through the desire of thoughtless shop keepers to modernize them by making unwise alterations.

Space does not permit here, unfortunately, the inclusion of illustrations of some of the early shop fronts still to be found in Portsmouth, Philadelphia and Charleston. To illustrate the perfect adapt-



Shop Front on West Street, Boston
Parker, Thomas & Rice, Architects

ability of early English and French shop fronts; two illustrations are shown at the bottom of this page. The design of the front of the candy shop in Providence is a clever adaptation of the old Louis XVI shop front preserved in the Metropolitan Museum, New York. A careful study of these two fronts will show the manner in which the design of the old French shop was adapted to the wider front of the shop in Providence. To permit greater window display, the entrance door was recessed. This change, necessitated by modern demands, is not primarily demanded by the design; but it is thoroughly characteristic of the typical shop front of today. The recessing of the entrance door, permitting side views into the front window, has been a development of the last few years.

Many examples may now be found where the show windows extend back into the shop, in some cases a third of its depth, before the entrance door is actually reached. This arrangement, which permits an extensive window display, is a contribution of modern merchandising efficiency which has become permanent in the shop and store field.

Not only wood may be used for the muntins of small show windows where small panes are used, for metal also is frequently quite as effective, especially where the metal muntins are painted or otherwise treated to emphasize the divisions of the window. The excellent shop front illustrated on page 103 suggests an admirable arrangement of transoms for the actual show windows.

The shop windows of old times were used not only for the display of goods on the window floor and shelves, but also served to furnish light for the shop interiors. Modern shop keepers seem to feel that it is usually essential that the show window should be

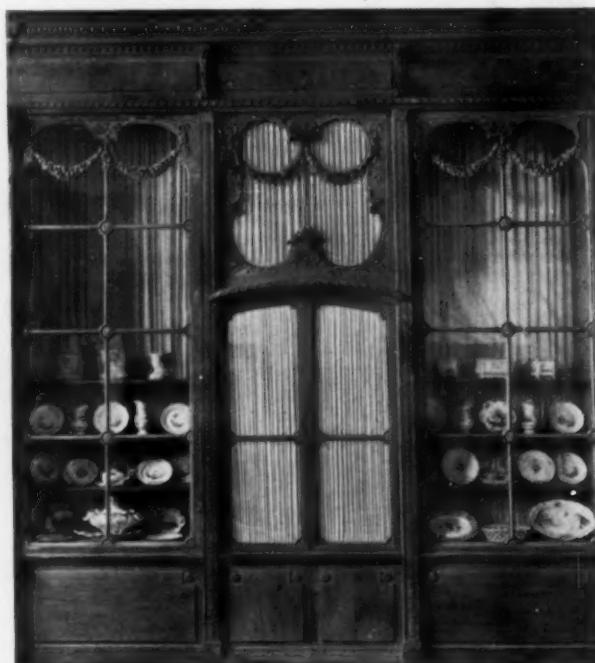
completely walled in behind to make a background for the goods displayed. From the aesthetic point of view there seems little logic in this modern requirement, as far as small shops are concerned. As a matter of fact, a low partition or railing often forms a sufficient and attractive background for practically any small window display, permitting the passerby to gain pleasant glimpses of the interior of the shop and the various wares offered for sale therein.

It is, however, a slow and difficult task to change the opinions and prejudices gradually formed through the course of years. This task can be undertaken only by the architect who is commissioned to design a small shop front. It is clearly his duty to use every argument and all the persuasive power he has at his command to make clear to the shop owner the tremendous advantage and sales value of a well designed, architectural shop front. The buying public is inevitably drawn to an attractive shop front, no matter what may be the nature of merchandise on sale. The value of this fundamental truth, based on psychological, subconscious reactions, cannot be denied; the only difficulty is to educate the shop keeper to appreciate this fact and take advantage of it.

Works on old English and French architecture contain countless illustrations of small shop facades with windows which abound in suggestions which may be easily developed by an architect, and since the attractive arrangement of shop windows is a detail intimately connected with advertising, many of the illustrators who serve advertisers have learned the secret of imparting interest to small shop windows, and their illustrations, in which of course due attention has been given to details of scale, balance and proportion, offer suggestions valuable indeed.



Shop Front in French Style, Providence
Strickland, Blodget & Law, Architects



Old French Shop Front in the Metropolitan
Museum, New York

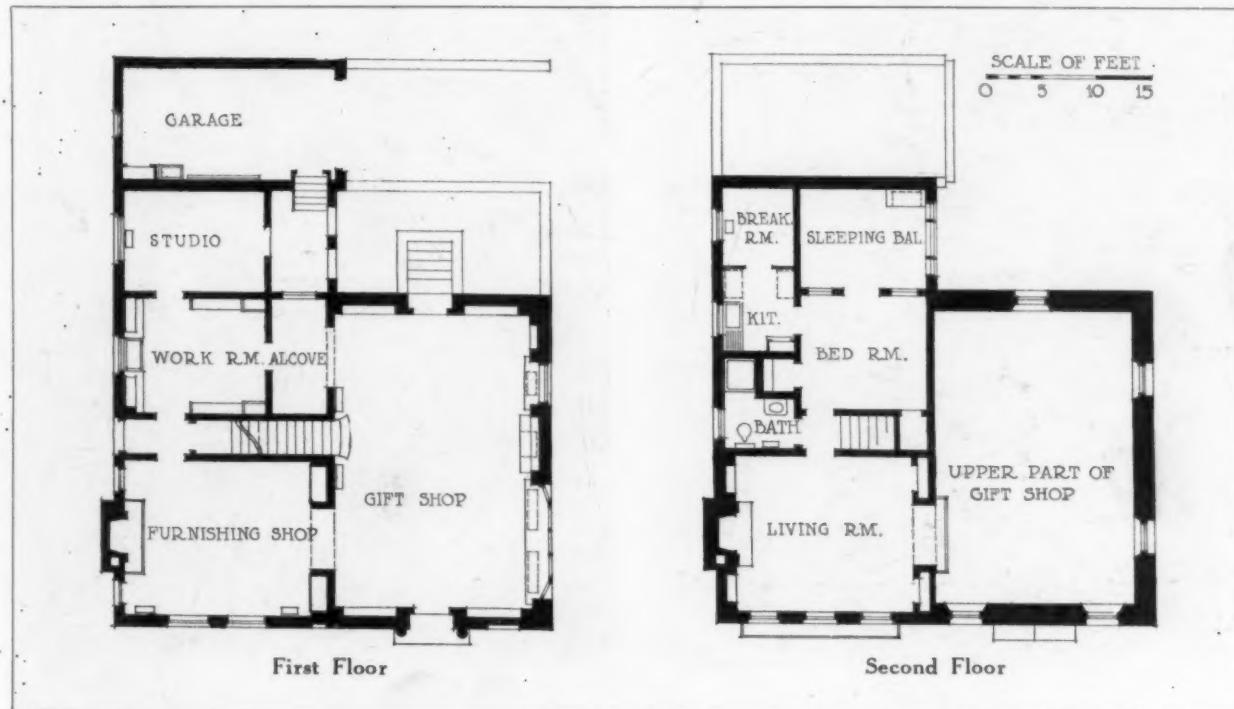


Photos. H. D. Barlow

SMALL ART SHOP AT RIDGEWOOD, N. J.
ALBERT MARTEN BEDELL, ARCHITECT

THIS picturesque little building, designed in the Italian style, is built into the side of a hill, permitting the locating of a small garage at the rear of the building on a higher level. The design of the facade logically suggests or indicates the interior plan.

An interesting arched doorway with cast stone trim forms the main entrance to the shop. At the left are two arched show windows of pleasing proportions, and three long casement windows open (Outline Specifications, Details and Cost on Next Page)



FORUM SPECIFICATION AND DATA SHEET — 9

Small Art Shop at Ridgewood, N. J.; Albert Marten Bedell, Architect

OUTLINE SPECIFICATIONS

EXTERIOR:

Rough stucco with white cement on hollow tile.
Copper leaders and gutters.

TRIM:

White pine.

ROOF:

Red tile.

WINDOWS:

Wood casements and show windows divided
into small lights.

FLOORS:

First floor—linoleum, tile pattern, with felt lin-
ing over underflooring; second floor—oak
over underflooring, finished with shellac;
bathroom—tile wainscoting, including that of
shower bath.

(Perspective and Plans on Preceding Page)

HEATING:

Steam heat, open radiators. Service hot water
heated by means of gas heater connected with
boiler.

PLUMBING:

Enameled iron fixtures. Gas range in kitchen.

INTERIOR MILL WORK:

White wood throughout; birch veneered doors.

STAIRS:

Oak, with silk cord handrail.

WALL FINISH:

Gift shop portion and living room finished in
rough cement; rest of rooms sand-finished
plaster.

COST DATA

Cost of building, complete; in the year of its
completion, 1924, \$22,000

onto a narrow iron balcony. Small square windows above the entrance door suggest the height of the two-story room within. The Italian character of the design is further carried out by the red tiles of the low roof, the gentle slope of which suggests that of an Italian farmhouse.

The arched entrance door at the right leads into a large gallery, 18 by 28 feet, which is two full stories in height. At the left is a small one-story room with two arched show windows opening onto the

street. From the large gallery a walled staircase leads to a living apartment above. At the rear of the first floor are a workroom, a small studio, and the garage, the latter reached by a short flight of steps from the open loggia, which looks into a small walled garden at the rear of the large gallery. This tiny garden is paved with flagstones and decorated with stone seats, a small fountain and groups of low planting. Into its gray stucco walls are set colored medallions of modern decorative Della Robbia ware.



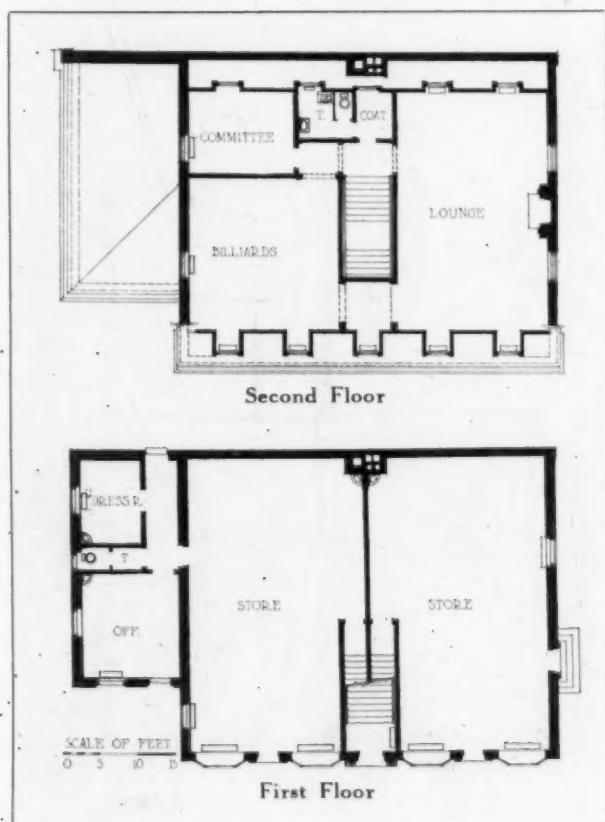
Interior of Shop, Showing Balcony



Detail of Main Entrance Door



SHOP BUILDING IN THE COLONIAL STYLE, WATERTOWN, CONN.
ELECTUS D. LITCHFIELD & ROGERS, ARCHITECTS



ACCURACY of detail, carefully studied scale and proportion, together with color and texture in the brickwork combine to give charm to this small building. The plan shows two complete stores on the street level. The rooms on the second floor, which is reached by a stairway at the center door on the front of the building, are used in connection with the community building which is located at the rear of the lower level. These rooms include a large living room across one end of the building, connecting by an alcove with a billiard room on the opposite corner, back of which are a committee room, cloak room and toilet. The front elevation consistently indicates the interior plan. Four projecting shop windows and two doorways are grouped on either side of the main entrance door. All of the details,—trim, cornice, dormers, etc.,—are carefully carried out in the Colonial style and painted white, forming a pleasing contrast to the red brick walls and brick platform in front of the building. In one accompanying illustration the entrance to the community building shows at the right. The smaller wing at the left of the building also opens directly onto the street level and contains an office, a toilet and dressing room opening into the small hall, which connects by a few steps with the stage of the auditorium in the rear.

The simplicity of this little building, with its broad
(Outline Specifications, Details and Cost on Next Page)

FORUM SPECIFICATION AND DATA SHEET — 10

Shop Building in the Colonial Style, Watertown, Conn.; Electus D. Litchfield & Rogers, Architects

OUTLINE SPECIFICATIONS

EXTERIOR:

Solid brick walls, 12 inches thick. Interior plastering applied directly to brickwork.

EXTERIOR TRIM:

White wood.

ROOF:

Wood shingles.

WINDOWS:

Double-hung; wood frames and sashes.

FLOORS:

All floors Georgia pine; toilet room, ceramic tile.

(Perspective and Plans on Preceding Page)

HEATING:

Steam, exposed radiators; service hot water heated by separate coal-burning stove.

PLUMBING:

Enameled iron fixtures throughout.

INTERIOR MILL WORK:

Cypress and white wood.

STAIRS:

Wood.

WALL FINISH:

Three-coat plaster, smooth finish throughout.

COST DATA

Approximate cost, \$40,000 in year of completion, 1916.

wall surfaces and gambrel roof, renders it a pleasing and successful example of the adaptation of Colonial precedent to modern requirements.

The benefits which follow when care and attention to small details are given to a building are not often as apparent as they are in this instance. As has already been said, great care has been given to scale, and every detail of the building shows skill in the use of ornament. Nothing has been slighted or overlooked, and one of the happiest details is that shown in the cut at the lower right hand corner of this page

where the line of the gambrel roof meets that of the cornice of the community building at the rear.

Analysis will show that much of the charm of the building is due to the taste and skill with which the architects have used small panes for the windows and the show windows, and for the transom of the large door which is the main entrance to the community house. Taste has been shown even in the design of the wooden railings or parapets which guard the platforms at each end of the building, that at the right leading to the community house.



Detail of Shop Windows and Door



View Showing Community Hall in the Rear



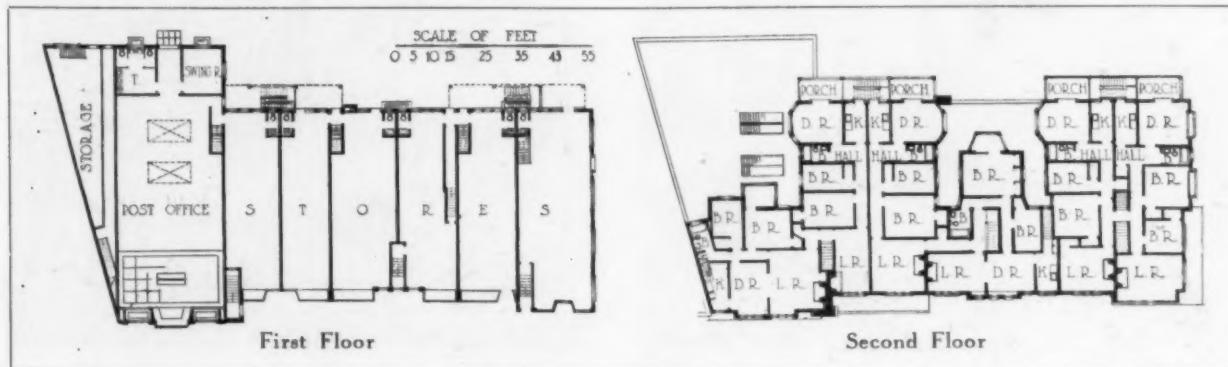
BLOCK OF ENGLISH SHOPS AT UPPER MONTCLAIR, N. J.

FRANCIS A. NELSON, ARCHITECT

ALTHOUGH only a small section of this block of stores and apartments in the English style is as yet finished, from the architect's pen and ink sketch at the head of this page an excellent idea can be obtained of the variety of detail and charm of character which this group will have when completed. The illustration here shows the section already finished, containing the town post office and two shops. The apartments on the second floor are reached by a stairway cleverly located under the large corner chimney at the left of the design, and by a stairway under the arch in this picture. Not only diversity of detail, but also warmth of color emphasize the design of this shop group. The warm toned stucco walls make a pleasant background for the exposed beams which are stained light brown.

Brickwork in warm red with white joints gives added structural strength and color value to the base of the building and consistently ties together the foundation and brick chimneys of the structure. Both chimneys have English chimney pots, while variety is obtained through the use of stucco instead of brick for the upper part of the larger chimney. Casement windows, and a vari-colored slate roof still further add to the charm and English character of the design. The sharp pitch of the roof gables and dormers gives a distinctly picturesque quality.

In plan the first floor of the completed section of this village block shows a post office at the left, with two arched doorways and center window. This space, which is about 29 feet wide, extends the entire depth (Outline Specifications, Details and Cost on Next Page)



FORUM SPECIFICATION AND DATA SHEET—11

Block of English Shops, Upper Montclair, N. J.; Francis A. Nelson, Architect

OUTLINE SPECIFICATIONS

EXTERIOR:

Construction—wood frame with brick veneer below and stucco on wire lathing above. Exposed timber work is decorative and not constructional.

EXTERIOR TRIM:

Cypress, stained brown.

ROOF:

Slate, varying shades of purple, gray, red and green.

WINDOWS:

Wood casements, divided into small panes.

FLOORS:

First floor—straight oak, excepting public space in post office where terrazzo floor and border are used. In entrance to stairways, floors are

(*Perspective and Plans on Preceding Page*)

tiled. In bathrooms and toilets, floors are ceramic tile. Second floor—Georgia pine throughout.

HEATING:

Steam with open radiators. Service hot water heated by gas.

PLUMBING:

Enameled iron fixtures; gas range in kitchen.

INTERIOR MILL WORK:

White wood throughout.

STAIRS:

Oak treads and handrail.

WALL FINISH:

Two-coat plaster, rough finished throughout.

COST DATA

Cost, \$43,700 in year of completion, 1921.

of the building, at the rear of which is a large double doorway, with receiving platform at which the mail wagons may unload. At one side of this receiving entry is a good sized toilet and wash room, while at the other end is a mail sorting room. The remaining space on the first floor is occupied by two shops of approximately equal width and depth. On account of the stairway leading to the second floor, the left hand of these two shops has a smaller show window than the shop at the right. Each shop extends throughout the entire depth of the building, with individual lavatory, and access by adjacent

stairs to the basement below. The second floor is occupied by three living apartments, each containing a living room, dining room, two bedrooms, kitchenette and bath. Each living room, however small, has an open fireplace. The apartment at the right end of the present building is reached by an outside stairway, to be removed when the block is completed.

From the consideration of this brief analysis as well as a careful study of the accompanying illustrations and drawings, one can readily appreciate how suggestive and full of inspiration is this unusually picturesque design of a village shop group.



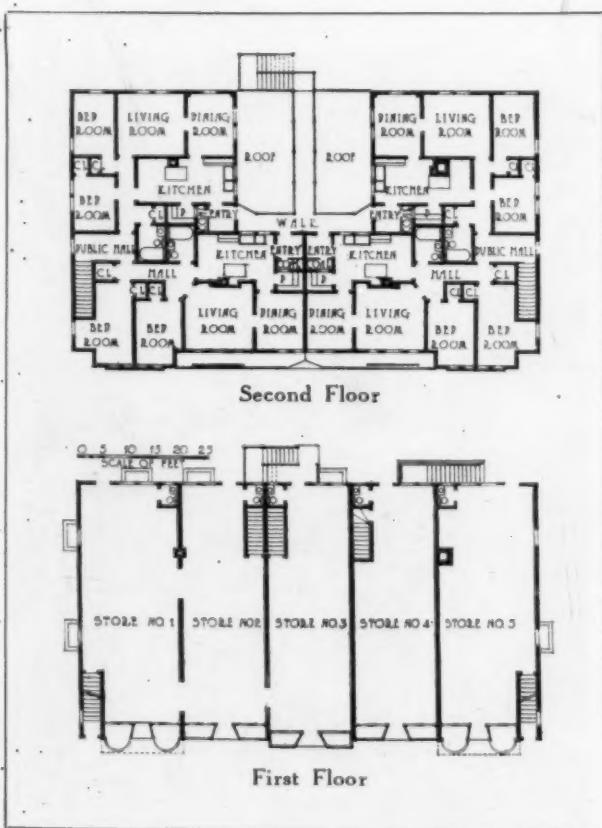
Detail of End of Block



Shops and Apartment Entrances



BLOCK OF SHOPS AT FALMOUTH, MASS.
HUTCHINS & FRENCH, ARCHITECTS



ONE of the most interesting examples of country shop designs, executed entirely in wood painted white, is to be found at Falmouth, Mass. In this block an English type of store front design has been combined with early American Colonial detail. Five shops occupy the street floor of this picturesque New England building, and much charm has been obtained through the variation of treatment in balanced design. Projecting bays with bowed shop windows emphasize the ends, between which three shops with straight windows project under a roof.

The center of the design is emphasized by a hooded entrance and slightly projecting shop windows. On the second floor grouped windows indicate the individual shops below. Small panes of glass give scale to all of the windows, and blinds painted green suggest the domestic character of the second story of the building, which contains four apartments. Stairways at either end of the building connect with these second floor apartments, which are also reached by an outside stairway at the rear of the building, giving access across the roof of the center store to service entrances of all four apartments. This center court on the second floor makes it possible for all the rooms of the four apartments to have outside light and ventilation. Opening on this court are located the kitchens of all these four apartments. (Outline Specifications, Details and Cost on Next Page)

FORUM SPECIFICATION AND DATA SHEET — 12

Block of Shops at Falmouth, Mass.; Hutchins & French, Architects

OUTLINE SPECIFICATIONS

CONSTRUCTION:

Frame construction with stud walls and concrete foundations; boarding and hand-hewn shingles, laid 10 inches to the weather.

EXTERIOR TRIM:

White pine.

ROOF:

Sloping roofs—cedar shingles, stained green.

Flat roofs—tar and gravel.

WINDOWS:

Wood frames and sashes, double-hung, divided into small bays. Show windows, stationary.

FLOORS:

First floor—maple in 2-inch widths.

Second floor—combed-grain Georgia pine.

Bathroom floors—ceramic tile.

HEATING:

Vapor steam, with open radiators.

(*Perspective and Plans on Preceding Page*)

Service hot water heated by individual coal heater.

PLUMBING:

Enamelled iron lavatories and bath tubs, soap-stone sinks and laundry trays; hot water boiler in each kitchen, connected with water-back in coal range.

INTERIOR MILL WORK:

North Carolina pine throughout; birch veneer doors second floor.

STAIRS:

White pine with oak treads.

WALL FINISH:

Three-coat smooth finish plaster painted, in shops; wallpaper in principal rooms of apartments.

COST DATA

Approximate cost, \$42,000, at time of completion, November, 1922.

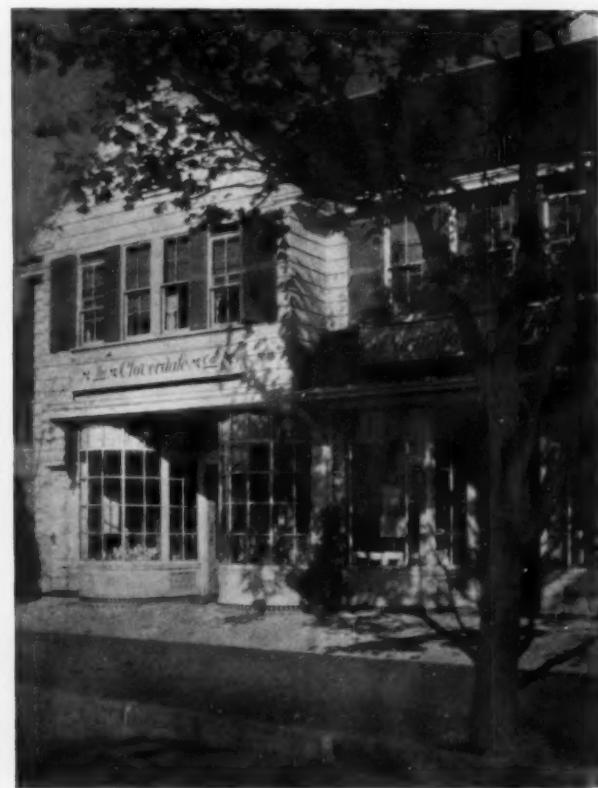
THIS shop and apartment group is of striking excellence in several respects, two being its being designed to look well from all points of view and its provision for the signs which shop keepers everywhere seem to think necessary. In almost all villages or small towns there are shop and apartment buildings or structures of other kinds having fronts which are presentable enough but with sides of raw,

crude brick and with two- or three-story verandas across the rears, all this rendering the buildings blots on the landscape.

Here too the signs of individual shop keepers have been so managed that they rather add to than detract from the group's architectural appearance. Much has been done by having permanent sign boards well designed and carefully lettered.



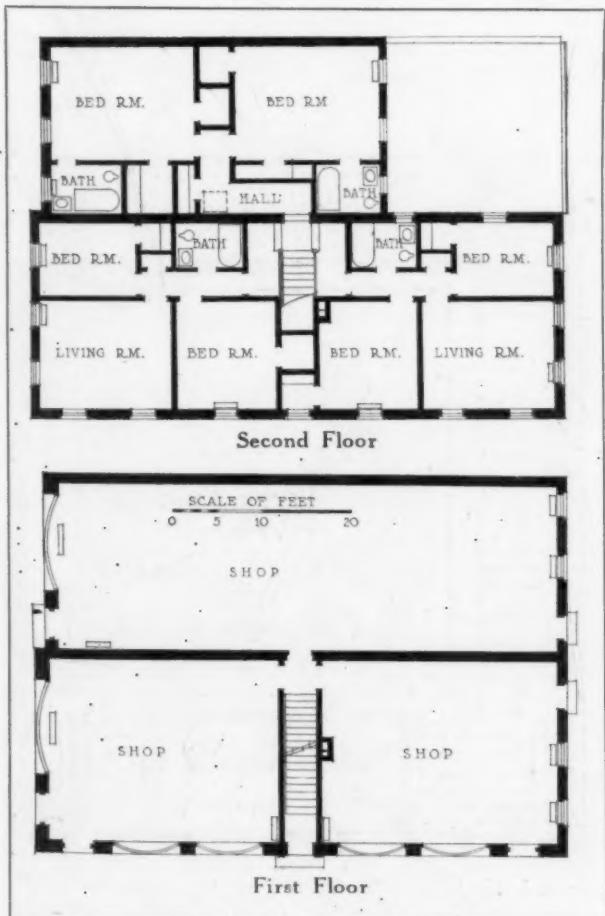
Detail of Center Shop



Detail of End Shop and Bay



ONE OF TWO STORE BUILDINGS IN THE COLONIAL STYLE AT PINEHURST, N. C.
AYMAR EMBURY, II, ARCHITECT



At Pinehurst, N. C., is located an interesting store building in which red brick and white Colonial details have been successfully combined. The plan shows an oblong building, 60 feet long by 43 feet deep. Two stores practically square in shape occupy the front of the building, each of these stores having two show windows and an entrance door. At the rear of these shops, opening on a side street, is a third store extending the entire length of the building, and about 19 feet wide. This store has a single show window and its own entrance door.

A center door, between the two front shops, leads to a stairway by means of which the apartments on the second floor are reached. Under this stairway steps lead down to the basement of the building, which is accessible to all three of the stores, as may be seen on the plan. There is also an outside entrance to this basement. On the front elevation, the two end doorways opening into the shops have arched tops with key blocks. The shop windows themselves were originally intended to be divided into small panes of glass, but this detail of the design was changed by the owner at the time the building was built, and to meet the demands of the store keepers single sheets of plate glass replaced the small panes specified. The center door shows a careful reproduction of Colonial detail, pilasters, arched openings and broken pediment, giving importance to this center feature of the building. Two long white panels to be used as sign boards were placed above the groups of windows. (Outline Specifications, Details and Cost on Next Page)

FORUM SPECIFICATION AND DATA SHEET — 13

Two Store Buildings in the Colonial Style at Pinehurst, N. C.; Aymar Embury, II, Architect

OUTLINE SPECIFICATIONS

CONSTRUCTION:

Brick walls, with frame construction. Interior walls, stud and wood lath with plaster over.

TRIM:

White wood.

ROOF:

Slate roof on store building at Pinehurst. Tar and gravel on shop at Englewood.

FLOORS:

Straight oak on first floor; Georgia pine second floor; tile in bathrooms.

WINDOWS:

Wood double-hung frames and sash; plate glass show windows.

(Perspective and Plans on Preceding Page)

HEATING:

Steam heat; free-standing radiators.

PLUMBING:

Enameled iron fixtures.

INTERIOR MILL WORK:

White wood throughout.

STAIRS:

Wood throughout.

WALL FINISH:

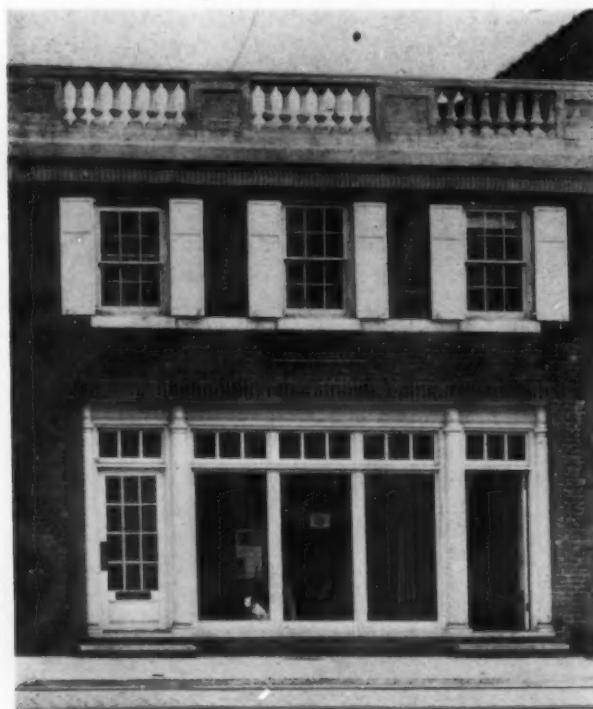
Three-coat plaster, eggshell finish.

COST DATA

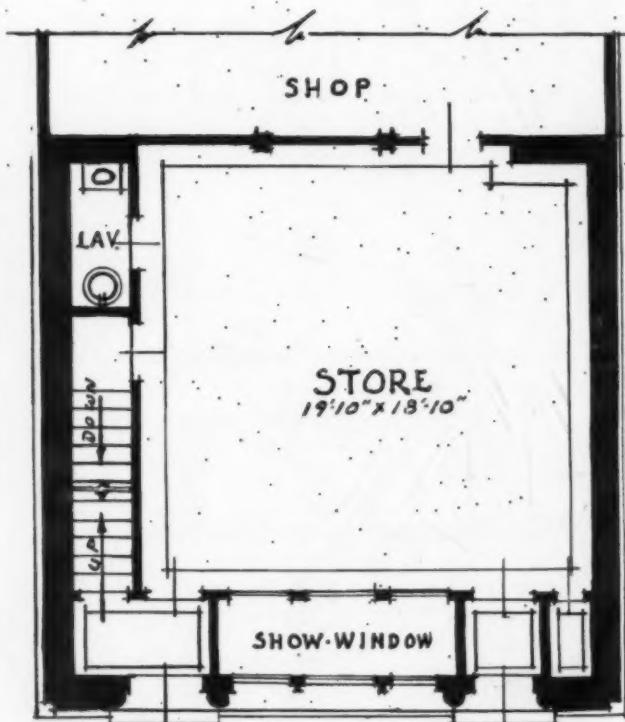
The store building at Pinehurst, completed in 1924, cost 25 cents per cubic foot. Actual cost of the bicycle shop building at Englewood, completed in 1914, was \$4,500.

SEVERAL years ago Mr. Embury designed for a bicycle shop in Englewood a small building, which shows in a remarkable way what can be done in a small store facade at a cost no greater than that of the typical ugly store front designed by the local contractor or carpenter, for a small town shop building. The charm of this little building is due to the quiet refinement and symmetry of design. Three windows of equal size balance on the second floor the group of doors and show windows on the first floor. The end doors, which lead into the shop and to the

stairway to the apartments above, are equal in width to the windows on the second floor. The marble sills and string courses under the second story windows pleasingly repeat the simple cornice above. The balustrade, divided by piers into three panels, adequately finishes the facade above the cornice. It is hoped that this carefully studied design may serve as an inspiration to architects facing the problem of how to give an inexpensive store building true architectural charm and character. At a moderate cost, the building is dignified and distinguished.



Bicycle Shop, Englewood, N. J.

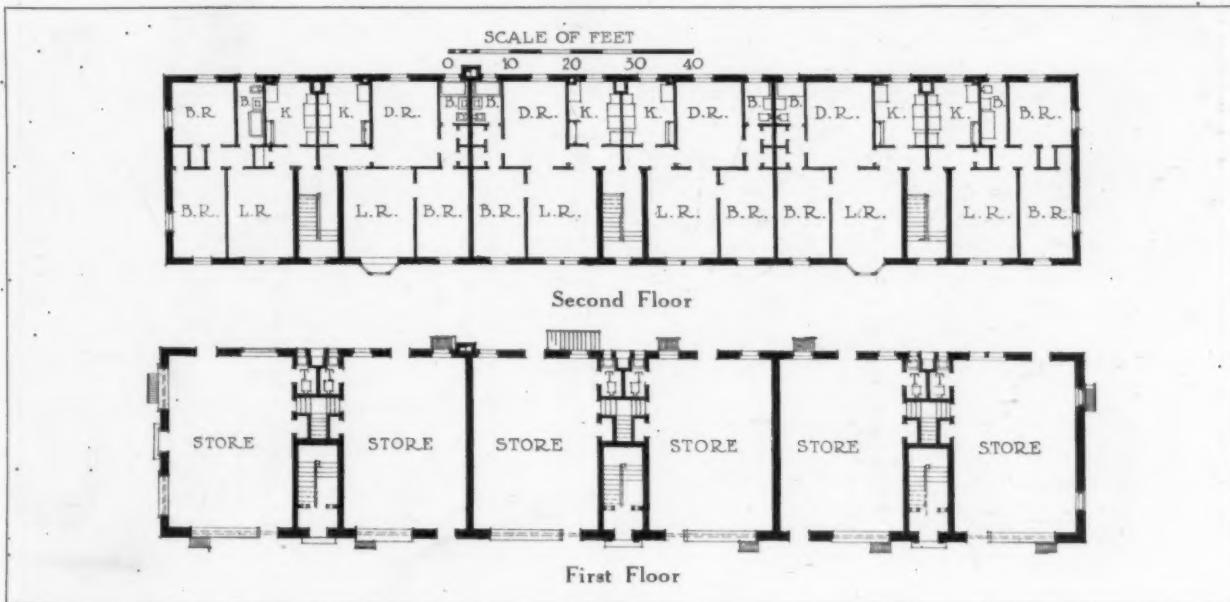




A SIX-STORE BUILDING AT YORKSHIP VILLAGE, N. J.
ELECTUS D. LITCHFIELD & ROGERS, ARCHITECTS

THE problem of small store architecture for a country town has been successfully solved in these three buildings in Yorkshire Village. The long, low building illustrated here shows the balanced design in which these shops with apartments above have been carefully worked out. The combination of Colonial details with Harvard brick produces a pleasing, old time atmosphere. The charm of the details of the store fronts and entrances is somewhat obscured by the use of dark instead of white paint. The trim of the several windows on the second floor, together with the cornice and leader pipes, is strongly delineated by the use of white paint. Had the owners consented to the use of white paint for

the trim of the first floor, a more pleasing consistency and character would have been given to the whole design. Dark paint was probably demanded for practical requirements. However, this unavoidable treatment of the shop windows and entrance doors cannot entirely destroy the charm of this long, low building. The scale and arrangement of the shop windows with their small panes of glass are unusually good, showing the possibilities of using old English and early American shop fronts in modern store buildings. Four of the shops show individual doors, combined with slightly projecting windows, while the remaining stores of the group have indi-
(Outline Specifications, Details and Cost on Next Page)



FORUM SPECIFICATION AND DATA SHEET — 14

A Six-Storey Building at Yorkship Village, N. J.; Electus D. Litchfield & Rogers, Architects

OUTLINE SPECIFICATIONS

CONSTRUCTION:

Solid brick walls, 12 inches thick. Interior plastering applied directly to brickwork.

TRIM:

Arkansas pine.

ROOF:

Slate.

FLOORS:

Georgia pine, throughout.

WINDOWS:

Wood, double-hung; sashes divided into small panes.

(*Perspective and Plans on Preceding Page*)

HEATING:

Steam heat; exposed radiators.

PLUMBING:

Enameled iron fixtures.

INTERIOR MILL WORK:

Arkansas pine.

STAIRS:

Wood.

WALL FINISH:

Three-coat plaster, smooth finish throughout.

COST DATA

Approximately 45c per cu. ft. at time of completion, November, 1918.

vidual doors with Colonial trim. Balancing these doors are similarly treated openings which lead to stairways, connecting with the apartments on the second floor. The center door in the block is treated more elaborately with a rich leaded glass transom and broken pediment above. This center door also leads to a stairway connecting with the apartments

above. The entire design is broken into five bays, each one of which is a well studied and balanced design in itself. A low, wide sweeping pediment with half-moon window emphasizes and gives distinction to the center bay of the design. This shop and apartment building adds materially to the unusually great architectural interest of Yorkship Village.



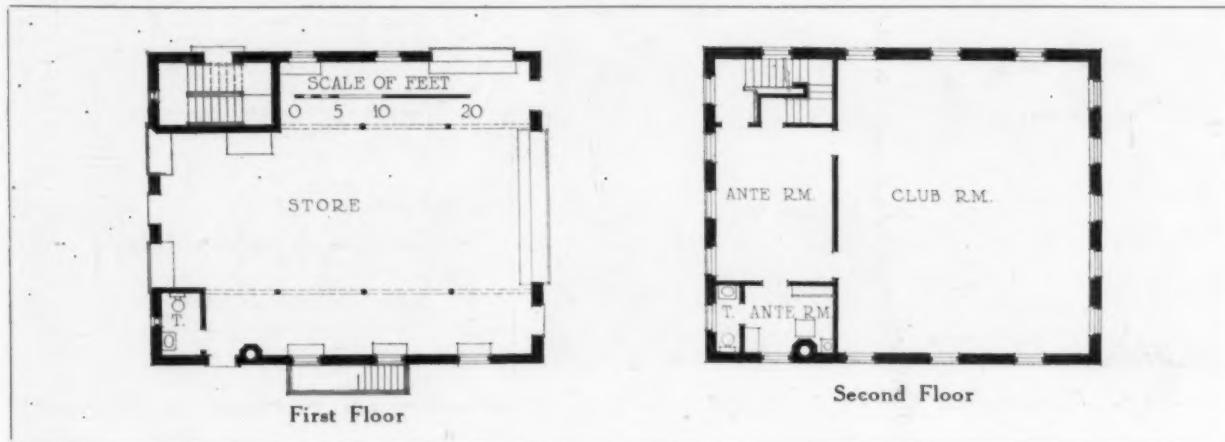


TWO SHOPS AT YORKSHIP VILLAGE, N. J.
ELECTUS D. LITCHFIELD & ROGERS, ARCHITECTS

DESIGNED in a simple and pleasing adaptation of the Colonial style, these two individual shop buildings might well have been designed by Samuel McIntyre, and built in Salem 150 years ago.

Although they are similar in size and construction, the buildings differ enough in design to justify individual analysis and discussion. One building shows a single large shop with an extensive center window flanked by arched entrance doors on the street front. Access to a lodge or club room on the second floor is had by means of an entrance door and

stairway at the rear corner of the building on the side street. The plan of the floor shows a toilet in the rear corner, and on the ground floor a rear door for delivery purposes opening into an alley. The cellar of the building is reached by means of outside steps at the rear of the building, as well as by a short stairway covered by a trapdoor from the shop itself. The corner stairway also leads down to the cellar, so that half of this floor can be used for storage purposes for the lodge and half for the shop. (Outline Specifications, Details and Cost on Next Page)



FORUM SPECIFICATION AND DATA SHEET — 15

Two Shops at Yorkshire Village, N. J.; Electus D. Litchfield & Rogers, Architects

OUTLINE SPECIFICATIONS

CONSTRUCTION:

Solid brick walls, 12 inches thick. Interior plastering applied directly to brickwork.

TRIM:

Arkansas pine.

ROOF:

Slate.

FLOORS:

Georgia pine, throughout.

WINDOWS:

Wood, double-hung; sashes divided into small panes.

(Perspective and Plans on Preceding Page)

HEATING:

Steam heat, exposed radiators.

PLUMBING:

Enamelled iron fixtures.

INTERIOR MILL WORK:

Arkansas pine.

STAIRS:

Wood.

WALL FINISH:

Three-coat plaster, smooth finish, throughout.

COST DATA

Approximately 45c per cu. ft. at time of completion, November, 1918.

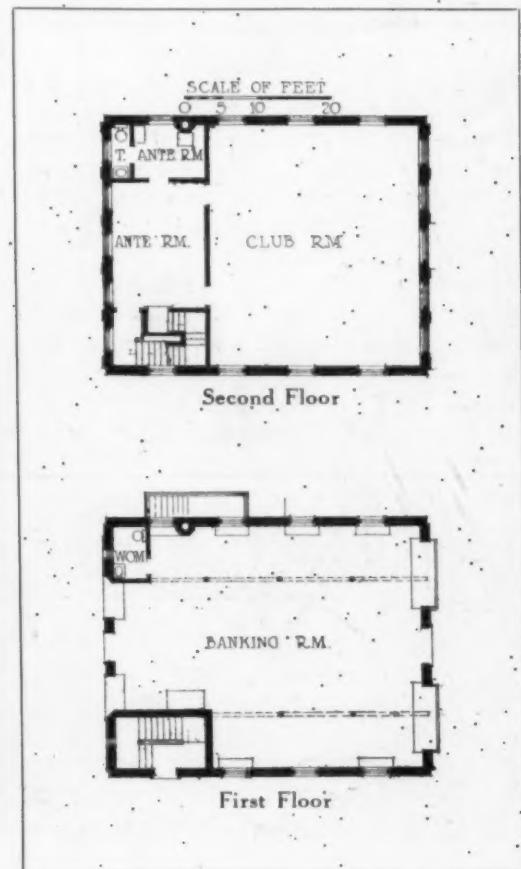
The second shop building is also 36 by 45 feet, and shows a plan much similar to that just described, with the difference that the front facade has large arched entrance doors in the center flanked on either side by projecting show windows. The stairways and toilets in this building are located as are those in the other store building. In each plan there is no direct connection from the shop on the main floor with the corner stair halls, which are shut off by fireproof brick walls and provided with iron stairs and fireproof doors. In each building the corner

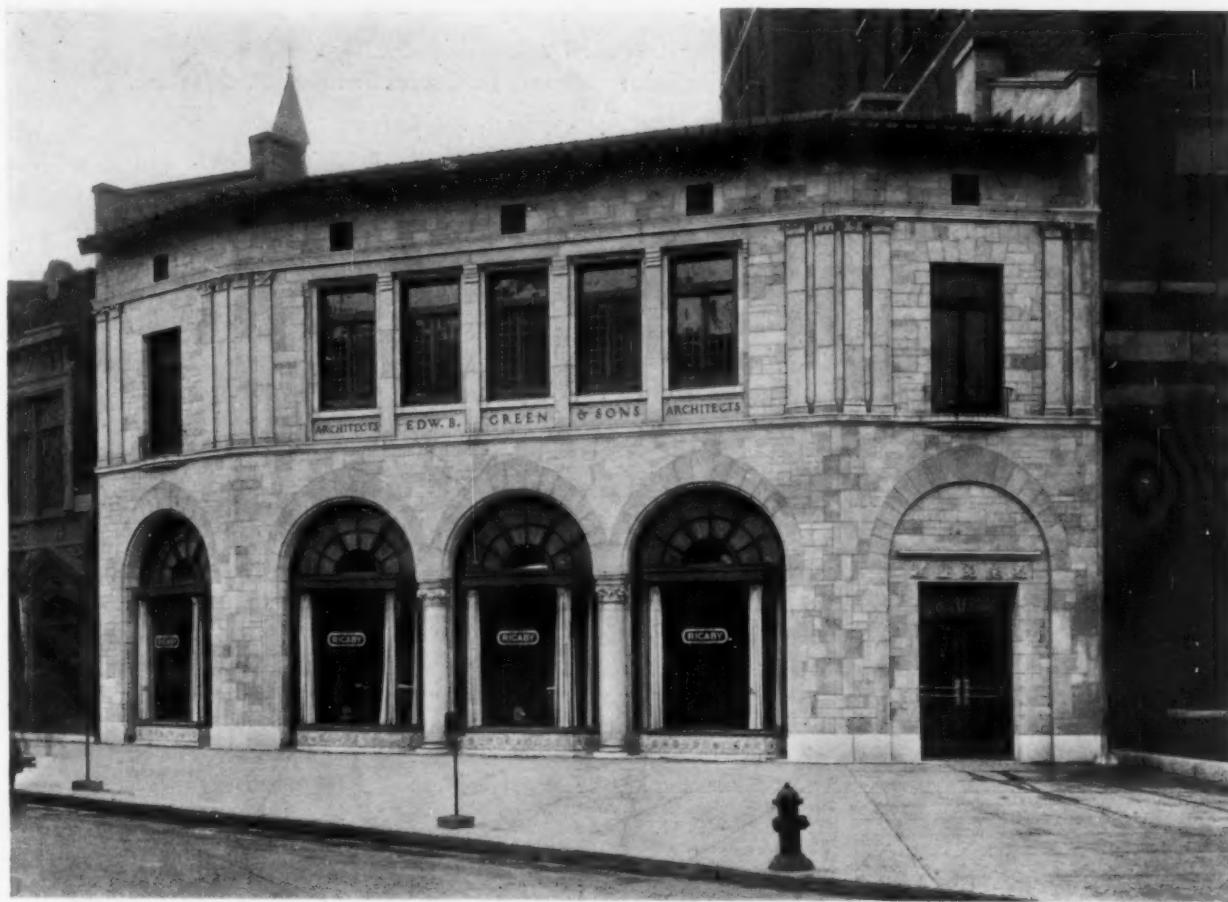
stairway acts as an enclosed fire escape for the lodge or club room on the second floor. A narrower continuation of each of these stairways runs up to an open gallery for the low rear rooms on the second floor of each building. These small rooms under the gallery are designed on the plan as anterooms and coat rooms.

The exterior of each of these buildings is built of red Harvard brick, laid up in Flemish bond, combined with wood window frames, sashes and door trim, carried out in the Colonial style, painted white.

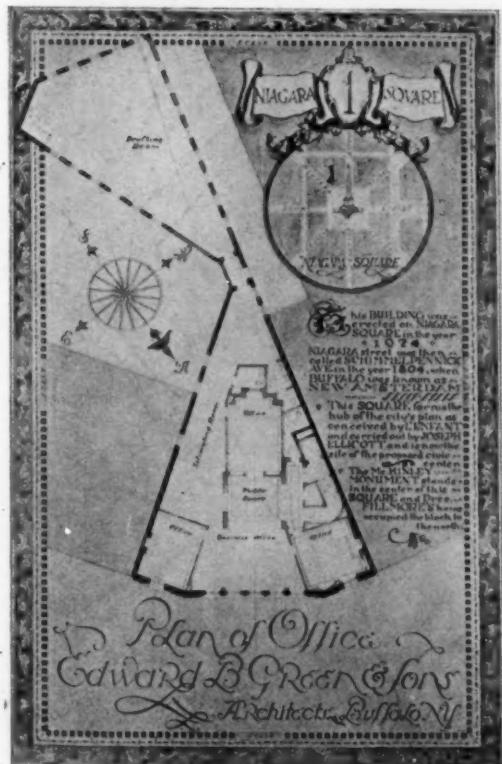


Alternate Types of Store Buildings





SHOP AND OFFICE BUILDING IN BUFFALO
EDWARD B. GREEN & SONS, ARCHITECTS



Plan of Offices on Second Floor

THIS little building, recently completed, shows an interesting use of Florentine Renaissance detail executed in stone. The Italian arcade is well adapted to the requirements of American store buildings, permitting a logical and consistent treatment of the large display windows so essential in modern shops. This use of the arcade, characteristic of Italian Renaissance architecture, was first used several years ago in two large store buildings in New York, designed by McKim, Mead & White. In this shop in Buffalo the arches are sufficiently large to serve as show windows and at the same time are kept in scale with the rest of the design. The columns which support the arches are purposely heavy, so that the arches above may appear to be adequately supported. Pointing the voussoirs of the arches is a typically Florentine feature which gives much individuality to the design. In the window treatment above the arches a concession is made to the necessity of properly lighting the architects' offices on the second floor. The end windows, flanked by double pilasters in low relief, are more consistently Italian, with their flat arched heads and low iron balustrades, than are the five center windows. However, this free handling of the Italian style is characteristically American, and pleasing in effect. Small square openings break the severity of the high frieze below the overhanging tiled roof.

The well proportioned end bays are worthy of careful study. The varying detail used in the several pilaster caps

(Outline Specifications, Details and Cost on Next Page)

FORUM SPECIFICATION AND DATA SHEET—16

Store and Office Building at Buffalo; Edward B. Green & Sons, Architects

OUTLINE SPECIFICATIONS

EXTERIOR:

Faced with Indiana limestone, backed with brick; steel and reinforced concrete floor for basement; wood joists for second floor; wood partitions, covered with burlap, on second floor.

ROOFS:

Red tile on slopes; tar and gravel elsewhere.

WINDOWS:

Metal frames on first floor; wood casements with leaded glass.

FLOORS:

Wood joist construction, supported on masonry; finished floors, oak.

(*Perspective and Plans on Preceding Page*)

HEATING:

Steam, with thermostatic control.

PLUMBING:

Porcelain fixtures.

INTERIOR MILL WORK:

Birch, stained.

STAIRS:

Fireproof construction.

WALL FINISH:

On first floor and stair hall, three-coat plaster; Partition on second floor, heavy wood sheathing over studs, covered with burlap.

COST DATA

Complete, 41c per cu. ft. in year of erection, 1924.

adds considerably to the interest of the design. The lintel over the entrance door has five square panels, carved in low relief, the designs of which suggest painting, architecture, music, literature and sculpture. The utilitarian entrance door with glass panes and brass pushbars is another concession to the practical requirements of a modern office building. Paneled doors in either bronze or wood, would have better suggested the Italian spirit in which the building is

conceived, but notwithstanding these unavoidable concessions to utilitarian necessity, the building displays unusual consistency in design and cleverness in adapting the plan to the very irregularly shaped lot, which extends through from Niagara Square to the street behind. The ground floor is given over to shop purposes, while on the second floor are the architectural offices of the owner. The building represents a successful solution of a problem.



Detail of Entrance Door



Detail of End Bay

INTERIOR ARCHITECTURE

✓ Details of a Louis XVI Salon at Fontainebleau

Drawn by C. HAMILTON PRESTON

FONTAINEBLEAU was a favorite residence with the kings of France as early as the reign of Louis VII. It was not, however, until Francis I ascended the throne that the palace as we now know it was begun. Through his tremendous admiration for the Renaissance, which had been introduced from Italy, Francis summoned a galaxy of great artists from that country, among whom were Primaticcio Serlio, Leonardo da Vinci, Andrea del Sarto, and numerous others. Under the influence of these artists and architects a great part of the palace as we know it today, including the gallery of Francis I, was built. Among the earlier French architects employed upon the palace we find Philibert de L'Orme, Du Cerceau, and Lemercier. Henry II, Henry IV and Louis XIII all made extensive additions to the palace.

Under Louis XIV we find the installation of the charming little suite of rooms for Madame de Maintenon, which are among the best of the smaller apartments of this period, still extant. Under Louis XV few

changes were made, but with the coming of Louis XVI to the throne, that exquisite series of rooms was arranged which have ever since been known as the Marie Antoinette apartments, in honor of her for whom they were built. Napoleon, who became a great lover of Fontainebleau, adapted for his own use what had been done in the past, and fitted for the Empress Josephine and himself a suite of rooms on the first floor, known as the Napoleon apartments, which remain today intact with the Empire furnishings perfectly preserved just as they were left. Each succeeding monarch seemed to respect the work of his predecessors at Fontainebleau, and fortunately the palace escaped the ravages

of the Revolution, and suffered no changes during the Second Empire, which worked havoc elsewhere.

The salon which is the subject of these detailed drawings is a room en suite with the Marie Antoinette apartments, which was afterwards used by Napoleon as an office for his secretaries. This room is chiefly distinguished for its great dignity and extraordinary proportions. In relation to its length and width, the height is unusual, giving an effect of extreme verticality, although at the same time most pleasing. The simplicity of the design and the refinement of detail and mouldings all contribute to the charm of this room. One could hardly find a simpler or more dignified interior, or one more practical.

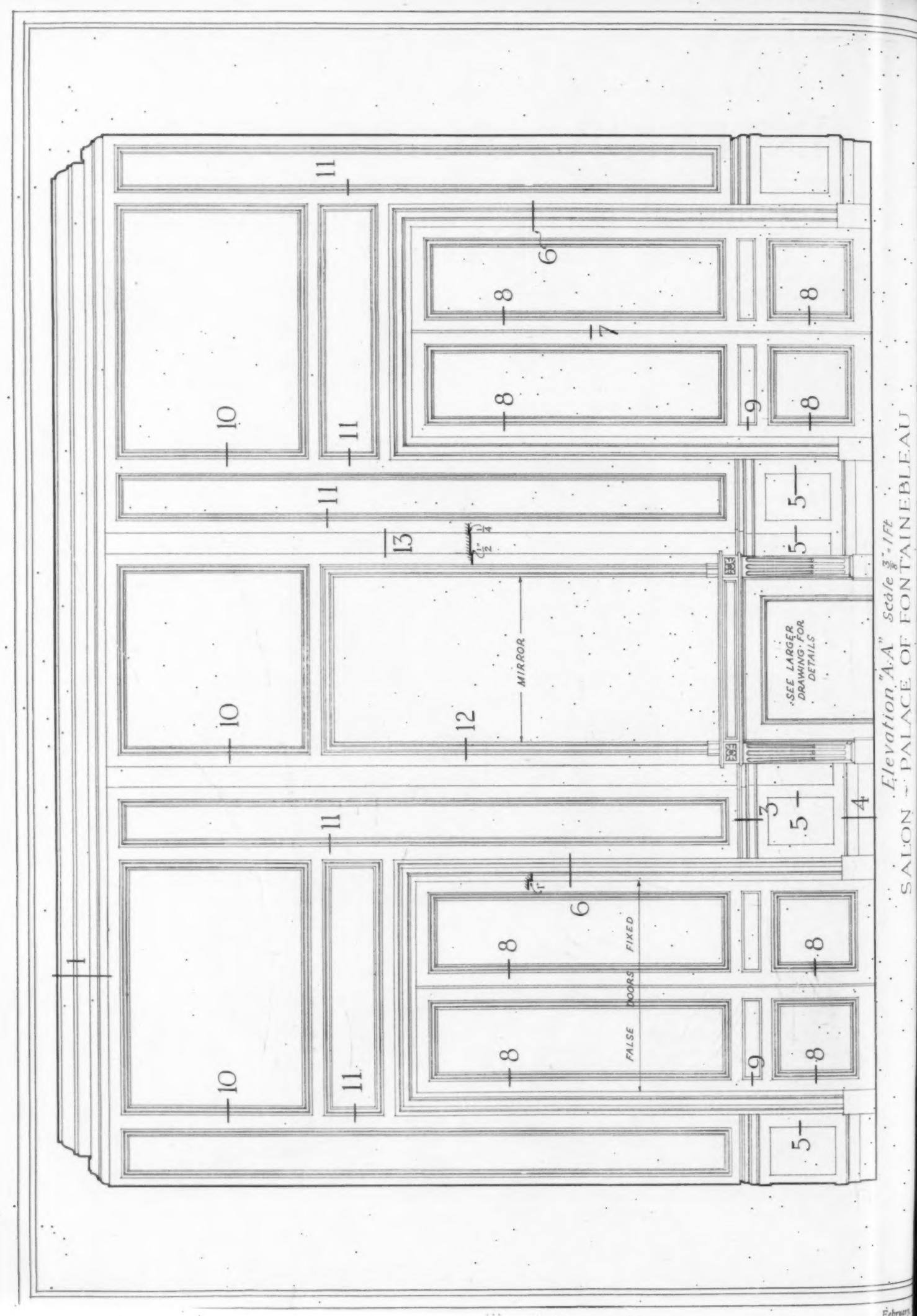
The delightful arrangement of the paneling is noteworthy. The real door at the right of the mantel is balanced on the other side by a false door, the tall narrow panels which run all around the room being placed between the mirror over the mantel and these doors, as well as at the ends of the wall, thus preserving a perfect symmetry. The wall oppo-

site has the same arrangement, a mirror being placed to exactly balance that over the mantel. In addition a mirror is placed between the windows at the end of the room. These mirrors, with their simple mouldings in gilt, are a distinct feature in the room.

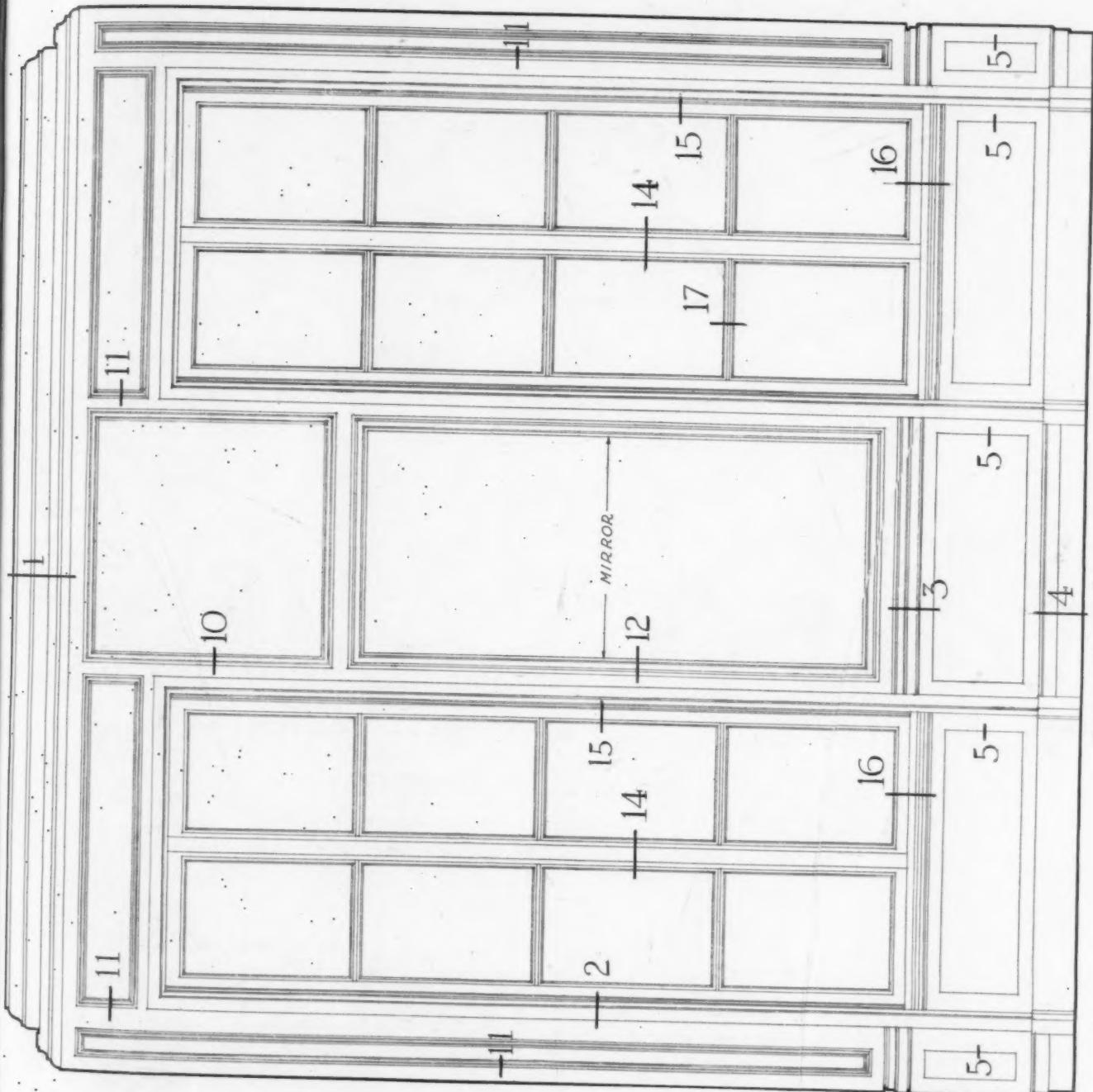
The raised panels in the base, with their simple projections and no mouldings, are unique. The arrangement of paneling on the wall opposite the windows is such as to carry around the scheme of larger and narrower panels with the greatest exactitude. Although of great refinement, the mouldings are vigorous, the larger panels being differentiated from the smaller in the scale of the mouldings. The cornice is bold, but in perfect scale and proportion.



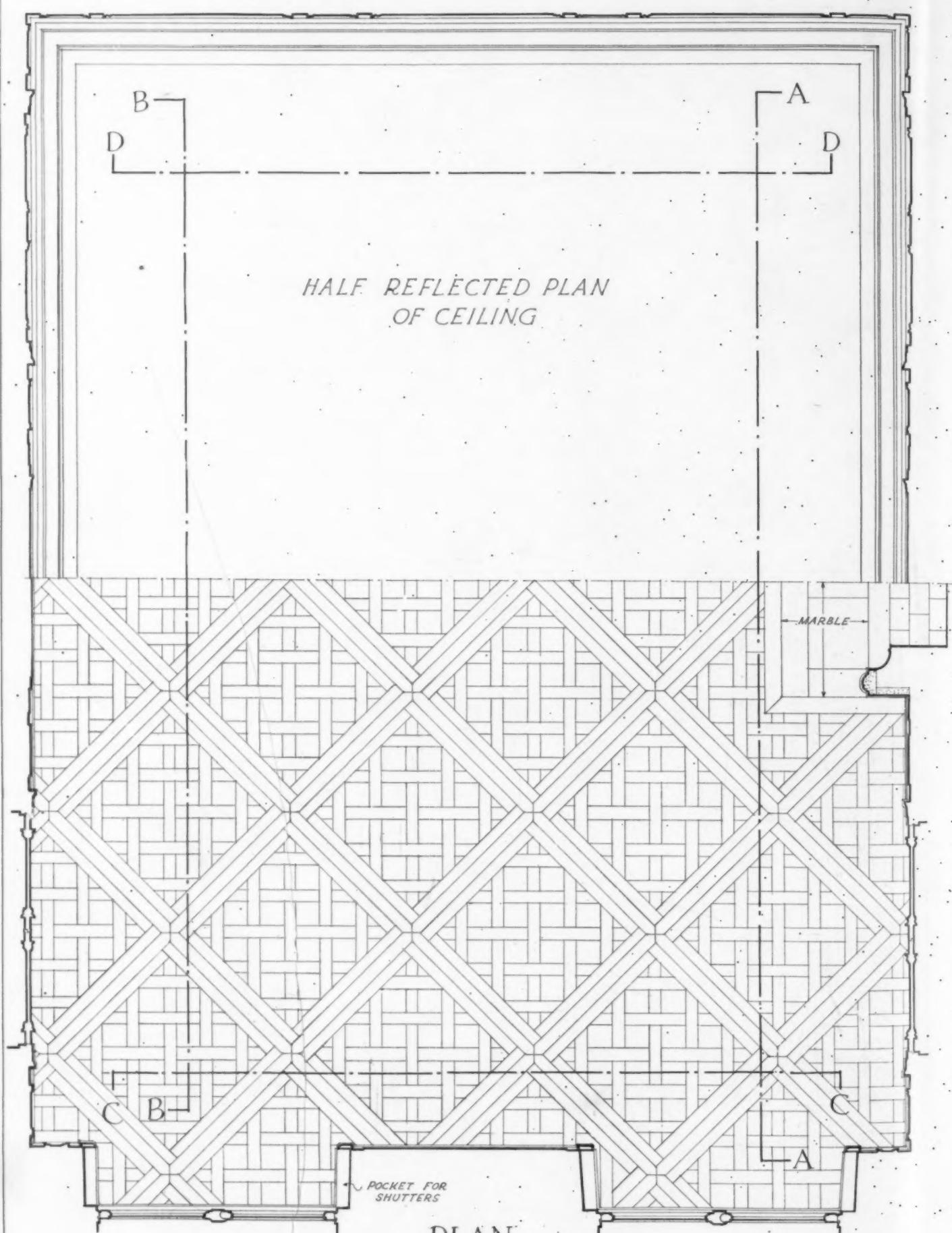
Napoleon Furnished This Salon in the Empire Style



Elevation "A-A" Scale 1/16".
SALON - PALACE OF FOUNTAINBLEAU

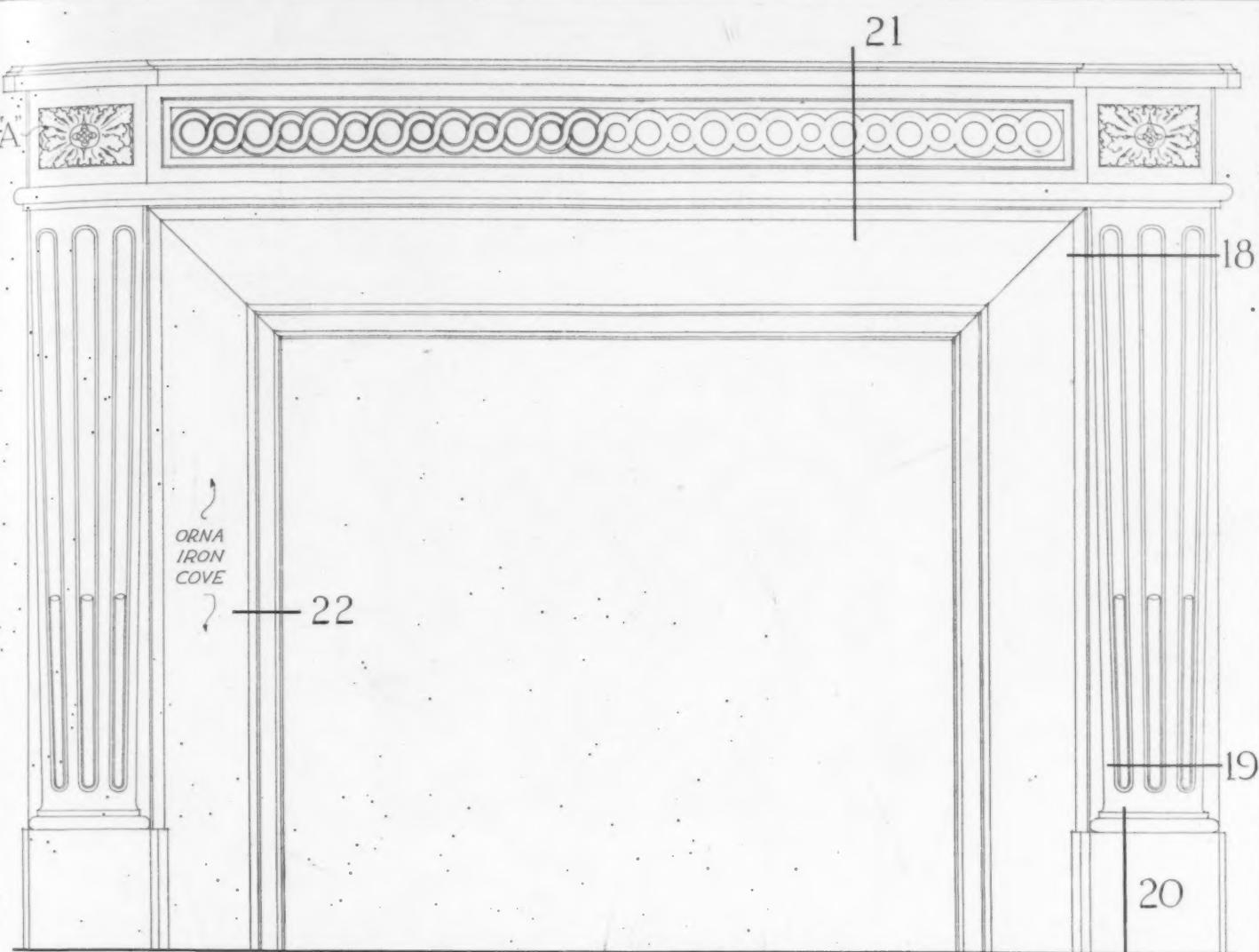


Elevation "C-C" Scale $\frac{3}{8}$:1/ft
SALON ~ PALACE OF FONTAINEBLEAU

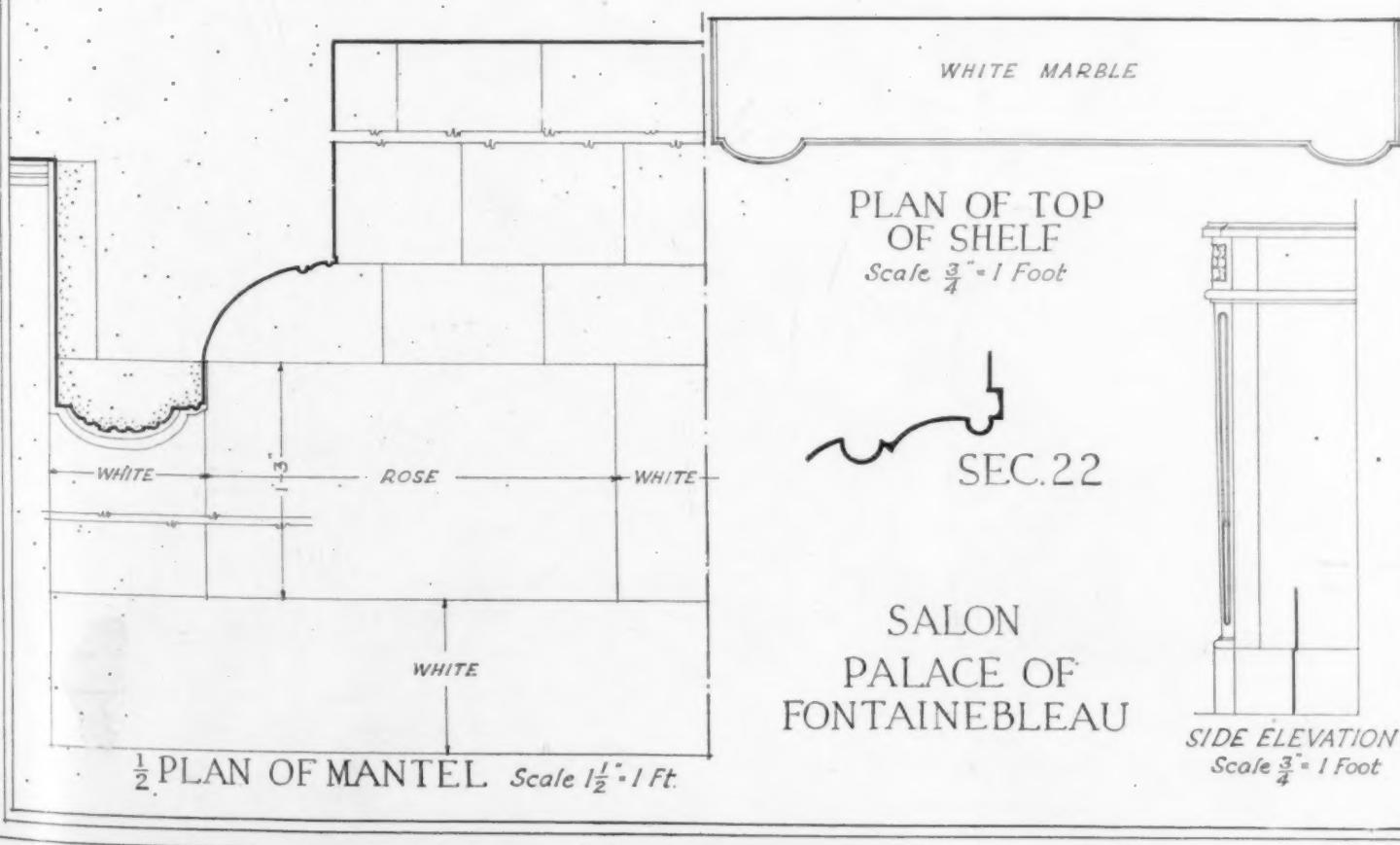


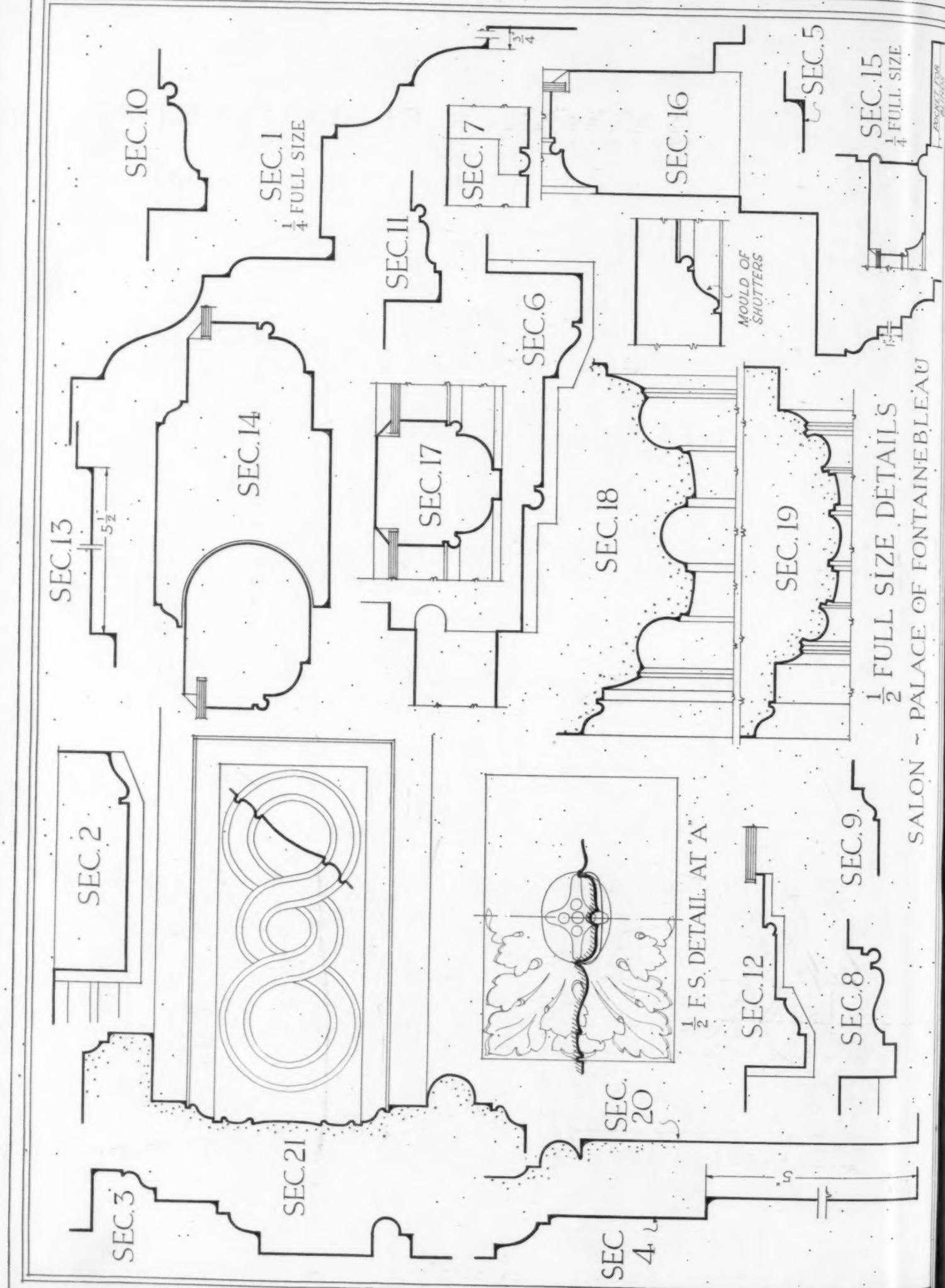
PLAN
Scale $\frac{3}{8}$ = 1 Ft

SALON - PALACE OF FONTAINEBLEAU



ELEVATION OF MANTEL





DECORATION & FURNITURE

Several Types of French Tables

By CARROLL BILL

THE so-called great periods of French furniture design, whose marked characteristics enable us most readily to identify them by style, are those of Louis XIV, Louis XV and also of Louis XVI.

Three types of Louis XIV tables are here illustrated. The earliest, shown in Fig. 1, is severe in outline, structurally practical and impressive in its sturdy strength. Its severity is relieved, however, by well placed repeating ornament using leaf and geometrical forms and telling of its derivation from Italian sources through Francis I. In the example of a later date, shown in Fig. 2, we may still see the same profiles of mouldings and type of detail but note an increased use of freely pierced carving and elaboration, particularly in the treatment of the stretchers and the addition of the carved ornaments hung under each side of the frame, this latter being a characteristic feature of the more florid type of Louis XIV table.

The later development of the style is shown in



Fig. 1. A Table of Early Louis XIV Period

are: structural soundness, a feeling of theatrical luxury, a symmetrically arranged and rich ornamentation, boldness of mouldings and profiles, and a lack of technical excellence of execution. Walnut was the wood most generally used, either finished in natural brown or gilded, and the tops were of marble.

The style of Louis XV, developing the already begun tendency towards softening of lines and freedom of ornament, carried to the extreme limit of inventive design the use of curves and sweeping lines combined with an amazing variety of

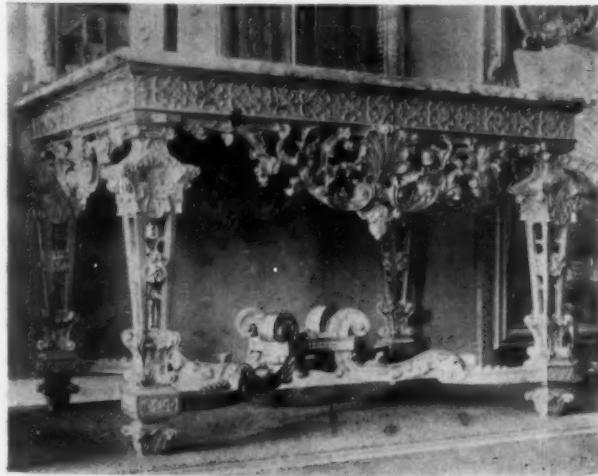


Fig. 2. Richly Ornamented Louis XIV Table

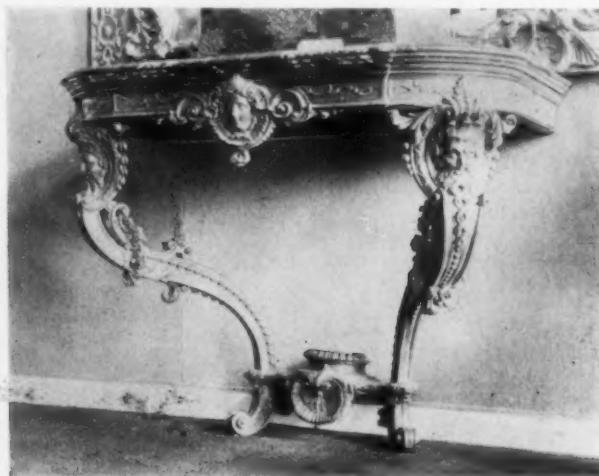


Fig. 3. Late Louis XIV Period



Fig. 4. Ornate Louis XV Console Table

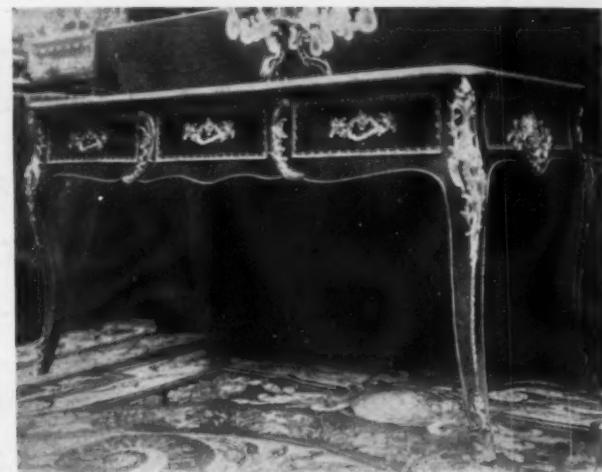


Fig. 5. Restrained Type of Louis XV Period

flower and leaf decoration. At first glance this disregard of the straight line might suggest structural weakness, but if we examine the console table shown in Fig. 4 it is very evident that its legs and underbracing, although in violent movement, are quite equal to the task of supporting the heavy marble top. Aside from this quality of concealed strength the most interesting characteristic of Louis XV furniture is the subtle balance of its ornament. Referring again to the console table, we note that should we draw a vertical line through its center, the two halves with their carved ornament are really not exact duplicates but are full of little differences of curvature and shaping, the whole, however, giving the appearance of balance, which is a feature of Louis XV design.

The large table shown in Fig. 5 is an example of a more restrained type, although equally typical of the style with its strong curving legs, sweeping lines of body and ornament which in this case is of ormolu or chased brass applied on figured wood.

In the style of Louis XVI, compared with those preceding, we note a restraint in use of ornamenta-

tion, a tendency to enclose decoration in panels and to recognize the vertical and horizontal feeling of legs, stretchers and bodies of tables. Here too an exact symmetry and balance of ornament are evident, and decorative detail is placed in a succession of repeating motifs. The turned leg is much in evidence and may be fluted either vertically or spirally, as in Fig. 6, and laid in with little carved husks, or else, as in Fig. 7, reeded and bound, to suggest a sheaf of arrows. All ornament shows a classic influence, and the straight mouldings are carved with beads, egg and dart and similar enrichments. The general form of tables is more nearly rectangular, with square edges and corners.

The large table shown in Fig. 7 illustrates very clearly the important structural characteristics of the style, and here we have the rectangular marble top with simply moulded edges and eight turned and carved legs connected by straight stretchers at the bottom; its ornamentation is formed by the repetition of a small number of decorative units enclosed in panels. The use of paint in the lighter colors,—grays, greens, and ivory,—was common.



Fig. 6. Wall Table, Louis XVI Style



Fig. 7. Characteristic Louis XVI Design